Washington State University subscribes to the principles and laws of the state of Washington and the federal government, including applicable Executive Orders, pertaining to civil rights, equal opportunity, and affirmative action. Washington State University policy prohibits discrimination on the basis of race, sex, including sexual harassment, religion, age, color, creed, national or ethnic origin, physical, mental, or sensory disability, marital status, sexual orientation, and status as a Vietnam-era or disabled veteran in the recruitment and admission of students, the recruitment, employment, and retention of faculty and staff, and the operation of all University programs, activities, and services. Evidence of practices which are inconsistent with this policy should be reported to the Director, Center for Human Rights, (1022) French Administration Building, Room 225, 509-335-8288.

For further information, write to:
Office of the Registrar
PO Box 641035
Pullman, WA 99164-1035
509-335-5346

For directory assistance, call:
509-335-3564

Alternate formats of this and any other Registrar's Office publication are available upon request for persons with disabilities. Please contact the Registrar’s Office by calling 509-335-5346 or by writing to Registrar’s Office, PO Box 641035, Pullman, WA 99164-1035.

Washington State University’s academic programs of study are approved by the Higher Education Coordinating Board’s State Approving Agency (HECB/SAA) for the enrollment of persons eligible to receive benefits under Title 38 and Title 10, U.S. Code.

5/08 122313
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The WSU faculty listing may be found online at catalog.wsu.edu.
How to Use this Catalog

Your Washington State University Catalog provides you with information on a wide variety of important topics. This page shows how you can use the catalog easily.

✔ General Information iv-55

The general information section provides you with information about admissions, student services, financial aid, and choosing a major, to name a few.

✔ General Education Requirements and Courses 57-65

It is important to understand WSU’s General Education Requirements (GERs), since you must fulfill them in order to graduate. The General Education section lists all courses which fulfill particular GERs. Vancouver students follow GER requirements described under the Vancouver Campus section of this catalog.

Note: Students pursuing degrees in the College of Liberal Arts and the College of Sciences have additional credit hour requirements for General Education and foreign language course work. Honors College students also have different requirements.

✔ Departments, Requirements, and Courses 67-335

The information in this section includes the following:

- A listing of faculty, descriptions of the academic fields, and details about departmental requirements for majors and options, in alphabetical order by department name.

- A complete listing of all requirements needed for each degree is shown in a semester-by-semester schedule of studies to help you plan your course of studies. Note that departmental requirements are set at the time you certify in your major.

- A description of the courses offered by each department. Undergraduate courses are numbered from 100 through 499. 100- and 200-level courses are suggested for first- and second-year students, while 300- and 400-level courses are most appropriate for third- and fourth-year students. Graduate courses are numbered from 500 through 800, and professional courses are designated with the letter P following the course number.

✔ Understanding the Schedule of Studies

Here is an example and explanation of what you will see when you look at a schedule of studies:

First Year

(1) First Semester Hours

Arts & Humanities [H,G] (GER)* 3
Degree Program Course1 3
Foreign Language, if necessary, or Elective* 4
Math Proficiency [N] (GER) 3 or 4
Tier I Science [Q] (GER) 3

(1) You are required to take a certain number of General Education Requirement courses from different areas. In this case, you need to choose an Arts & Humanities course. Here you have a choice of any course that is designated with an [H] or a [G] from the catalog. Keep in mind that all GER courses you choose must be outside your major department. This means that if you plan to be an architecture major, you cannot use Arch 202 [H] (GER) to satisfy your GER Arts & Humanities requirement, although anyone who is not an architecture major can. A complete list of all GER courses can be found under the General Education section of this catalog.

(2) Footnotes are frequently used to give you more detailed information. In this case, the footnote will list the courses from which to choose, given your specific degree program.

(3) The College of Liberal Arts and the College of Sciences require you to take one year of a foreign language at the university level, if two years were not completed at the high school level.

Many departments allow you to take the required courses in a different order. Your advisor can tell you how much flexibility you have in rearranging the courses that are required for your degree.

✔ Understanding Course Descriptions

Below are examples of course descriptions with definitions for each part. Important! Prerequisites will be listed if there are courses you need to take before you enroll in any particular class.

In the first example, the course prefix, “Biol”, is followed by the course number, and then by “[B]", which indicates that this course is a biological science GER course. The credit hours are shown next. This is a 4-credit course, with three hours in lecture and three hours in lab each week. Next are the prerequisites required for enrolling in the course; “c//” indicates that you may take chemistry at the same time you take Biol 107.

Biol

107 [B] Introductory Biology 4 (3-3) Prereq one semester of chemistry or c//. First or second semester of a one-year sequence (Biol 106/107 or Biol 107/106) for science majors and pre-professional students. Cell biology and genetics of prokaryotes and eukaryotes.

In the second example, this “Topics” course indicates that the subject matter for the class will change each term and that the class may be repeated for additional credit. The course is also a variable credit class and 3 - 6 credits may be offered or taken each term.

Anth

395 Topics in Anthropology V 3-6 May be repeated for credit; cumulative maximum 6 hours. Prereq junior standing. Examination of selected topics in contemporary anthropological theory and practice.
Plot Your Course!
Web-Based Course and Degree Tools

Want to explore how your courses will fit into a WSU degree program? Need to check your progress toward your degree or check how your course work would apply toward another degree? You can easily access this information through one of the Web services described below. These Web sites provide you with accurate information on courses and degree programs from the convenience of your computer.

FOR CURRENT WSU STUDENTS

The Degree Audit Reporting System (DARS)
The Degree Audit Reporting System (DARS) is an automated record that shows your progress toward completing an undergraduate degree in a particular major. DARS is one of several tools intended to help you understand what needs to be accomplished to complete your degree program. In concert with your advisor, you can use this report to keep track of your progress toward attaining a degree. The report does not replace the importance of academic advising; rather, it promotes a more sophisticated approach to academic and career counseling.

An automated degree audit details the progress you are making toward your degree by itemizing degree requirements and by showing the completion status of each requirement on the report. In addition to allowing you and your advisor to see which requirements are incomplete, the report also shows which courses may be used to satisfy requirements; this will help you to choose the best courses to take in future semesters. The report also shows requirements for graduation that are not met by taking courses, such as completing the junior writing portfolio or maintaining a certain grade point average.

You may request Degree Audit reports over the Web by following these links from the WSU Current Students homepage: currentstudents.wsu.edu, then click on myWSU, then click on Academics and then click on Register & Plan. There is no charge for requesting the report and it may be sent directly to your e-mail address.

“What If?” Reports: You may also use DARS to check how your courses would fit into other degree programs. For instance, if you were majoring in business, you could explore how your coursework would fulfill the requirements for a B.A. in English with a pre-law option simply by choosing that degree program under the “What If” button on the degree audit website.

When you have applied for graduation, the Degree Audit serves as the final check for degree clearance. For further information on DARS, contact your advisor or the Registrar’s Office.

FOR PROSPECTIVE TRANSFER STUDENTS

salc.wsu.edu/transfer
Student Advising and Learning Center Transfer Center
Lighty Student Services Building, Room 260
PO Box 641064
Pullman, WA 99164-1064
509-335-6000 or 800-978-7252
transfer@mail.salc.wsu.edu

Each year, Washington State University welcomes over 1,300 new transfer students to its Pullman Campus. You are considered a transfer student if you have enrolled in a regionally accredited college or university after the summer following your high-school graduation. Running Start students or students who have completed college coursework while in high school are considered freshmen for admission purposes.

Early planning is your key to success! Before you enroll, or during your first term in a Washington Community College, discuss your educational plans with a community college counselor, transfer center director, or academic advisor. Because requirements for degrees are so specific, you’ll need to investigate and make decisions early.

FOR ALL STUDENTS

Transfer Course Equivalency Web Site

www.wsu.edu/advise/transfer-courses

The Transfer Course Equivalency Web site is an online tool that allows you to determine how a specific course will transfer to WSU, based on college or university courses that are in our database. You may access transfer course equivalencies in three different ways, either by the transfer course, a set of transfer courses, or by a single WSU course. It is provided for planning purposes only. Please note that the final authority concerning all transfer course equivalencies rests with the WSU Office of Admissions, in consultation with individual academic units.

Exploring Undergraduate Majors

academics.wsu.edu

Students seeking an undergraduate degree at WSU can select a major from more than 250 fields of study. You can explore these majors as well as focused areas of study within the major by visiting this Web site. The Web site also provides links to the colleges, the regional campuses, and to information about graduate programs.

Also see page 49 on choosing a major and page 50 for a complete list of all majors.

WSU’s Online Catalog

catalog.wsu.edu

WSU’s online catalog contains the most up-to-date information about courses and degree requirements.
**Academic Calendar**

**First Semester (Fall)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor Day holiday</td>
<td>Sept 1</td>
<td>Sept 7</td>
<td>Sept 6</td>
<td>Sept 5</td>
<td>Sept 3</td>
<td>Sept 2</td>
<td>Sept 1</td>
</tr>
<tr>
<td>Veterans’ Day holiday</td>
<td>Nov 11</td>
<td>Nov 11</td>
<td>Nov 11</td>
<td>Nov 11</td>
<td>Nov 12</td>
<td>Nov 11</td>
<td>Nov 11</td>
</tr>
<tr>
<td>Commencement</td>
<td>Dec 13</td>
<td>Dec 12</td>
<td>Dec 11</td>
<td>Dec 10</td>
<td>Dec 8</td>
<td>Dec 7</td>
<td>Dec 13</td>
</tr>
<tr>
<td>Final grades due, 5:00 p.m.</td>
<td>Dec 23</td>
<td>Dec 22</td>
<td>Dec 21</td>
<td>Dec 20</td>
<td>Dec 18</td>
<td>Dec 17</td>
<td>Dec 23</td>
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</tbody>
</table>

**Second Semester (Spring)**

<table>
<thead>
<tr>
<th>Classes begin</th>
<th>Jan 12</th>
<th>Jan 11</th>
<th>Jan 10</th>
<th>Jan 9</th>
<th>Jan 7</th>
<th>Jan 13</th>
<th>Jan 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Martin Luther King Jr. Day holiday</td>
<td>Jan 19</td>
<td>Jan 18</td>
<td>Jan 17</td>
<td>Jan 16</td>
<td>Jan 21</td>
<td>Jan 20</td>
<td>Jan 19</td>
</tr>
<tr>
<td>Presidents’ Day holiday</td>
<td>Feb 16</td>
<td>Feb 15</td>
<td>Feb 21</td>
<td>Feb 20</td>
<td>Feb 18</td>
<td>Feb 17</td>
<td>Feb 16</td>
</tr>
<tr>
<td>Midsemester grades due, 5:00 pm.</td>
<td>Mar 4</td>
<td>Mar 3</td>
<td>Mar 2</td>
<td>Feb 29</td>
<td>Feb 27</td>
<td>Mar 5</td>
<td>Mar 4</td>
</tr>
<tr>
<td>Final Exams, Monday–Friday</td>
<td>May 4-8</td>
<td>May 3-7</td>
<td>May 2-6</td>
<td>April 30-May 4</td>
<td>April 29-May 3</td>
<td>May 5-9</td>
<td>May 4-8</td>
</tr>
<tr>
<td>Commencement</td>
<td>May 9</td>
<td>May 8</td>
<td>May 7</td>
<td>May 5</td>
<td>May 4</td>
<td>May 10</td>
<td>May 9</td>
</tr>
<tr>
<td>Final grades due, 5:00 p.m.</td>
<td>May 12</td>
<td>May 11</td>
<td>May 10</td>
<td>May 8</td>
<td>May 7</td>
<td>May 13</td>
<td>May 12</td>
</tr>
</tbody>
</table>

**Summer Session**

| Early Session begins | May 11 | May 10 | May 9 | May 7 | May 6 | May 12 | May 11 |
| Memorial Day holiday | May 25 | May 24 | May 30 | May 28 | May 27 | May 26 | May 25 |
| Eight-Week Session begins | June 8 | June 7 | June 6 | June 4 | June 3 | June 9 | June 8 |
| Late Six-Week Session begins | June 22 | June 21 | June 20 | June 18 | June 17 | June 23 | June 22 |
| Independence Day holiday | July 3 | July 5 | July 4 | July 4 | July 4 | July 4 | July 3 |
| Summer Session ends, Friday | July 31 | July 30 | July 29 | July 27 | July 26 | Aug 1 | July 31 |
| Final grades due, 5:00 p.m. | Aug 4 | Aug 3 | Aug 2 | July 31 | July 30 | Aug 5 | Aug 4 |

**Specialized Accreditations**

Washington State University is accredited by the Northwest Commission on Colleges and Universities, the regional accrediting association. The institution is a member of the National University Continuing Education Association and is listed in the official publications of the U.S. Office of Education and the State Department of Public Instruction.

Many departments and colleges are accredited by professional accrediting associations recognized by the Council on Postsecondary Accreditation. This information is included in the introductory material of the various departments and colleges, and an abbreviated list is printed below.

- Accrediting Commission on Education for Health Services Administration
- American Animal Hospital Association
- American Assembly of Collegiate Schools of Business:
  - The International Association for Management Education
- American Association for Accreditation of Laboratory Animal Care
- American Association of Colleges for Teacher Education
- American Association of Veterinary Laboratory Diagnosticians
- American Chemical Society
- American Council for Construction Education
- American Council on Pharmaceutical Education
- American Dietetic Association
- American Psychological Association
- American Society of Landscape Architects
- American Speech-Language-Hearing Association
- American Veterinary Medical Association
- Commission on Collegiate Nursing Education
- Computing Accreditation Commission of the Accreditation Board for Engineering and Technology
- Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology
- Foundation for Interior Design Education Research
- National Architectural Accrediting Board
- National Association for the Education of Young Children
- National Association of Schools of Music
- National Athletic Trainers Association
- National Council for Accreditation of Teacher Education
- National Recreation and Park Association
- Northwest Commission on Colleges and Universities
- Society for Range Management
- Society of American Foresters
- University Council for Educational Administration
- Washington State Board of Education
- Washington State Commission for Quality Assurance in Nursing
Board of Regents

French Administration Room 422
Pullman, Washington 99164-1048
509-335-6666
www.regents.wsu.edu

Governor Christine Gregoire
State of Washington
Advisory Member Ex Officio

Connie Niva, Chair of the Board
Everett

Francois X. Forgette, Vice Chair of the Board
Kennewick

Kenneth Alhadeff
Seattle

Scott E. Carson
Federal Way

Harold Cochran
Walla Walla

Elizabeth Cowles
Spokane

William J. Gordon, Student Regent
Pullman

Laura Jennings
Seattle

V. Rafael Stone
Seattle

Michael C. Worthy
Vancouver

Elson S. Floyd, Secretary

Gregory P. Royer, Treasurer
Officers of the University

**EXECUTIVE OFFICERS**

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President

Robert C. Bates  
Provost and Executive Vice President

John Fraire  
Vice President for Enrollment Management

John C. Gardner  
Vice President for Economic Development and Extension

Howard D. Grimes  
Vice President for Research and Dean, Graduate School

Larry G. James  
Associate Executive Vice President

Joan King  
Executive Director of Planning & Budget

Viji Murali  
Vice President for Information Systems and Chief Information Officer

Timothy L. Pavish  
Interim Vice President, University Relations

Gregory P. Royer  
Vice President for Business and Finance

Sally Savage  
General Counsel

James M. Sterk  
Director, Intercollegiate Athletics

Michael J. Tate  
Vice President for Student Affairs, Equity and Diversity

Brenda Wilson-Hale  
Vice President for University Development, Executive Officer of the WSU Foundation

**DEANS**

Warwick M. Bayly  
College of Veterinary Medicine

Daniel J. Bernardo  
College of Agricultural, Human, and Natural Resource Sciences

Candis S. Claiborn  
College of Engineering and Architecture

Patricia G. Butterfield  
College of Nursing

Linda Kirk Fox  
WSU Extension

Howard D. Grimes  
Graduate School

Michael D. Griswold  
College of Sciences

James P. Kehrer  
College of Pharmacy

Erich J. Lear  
College of Liberal Arts

Judy N. Mitchell  
College of Education

Muriel K. Oaks  
Extended University Services

Eric B. Spangenberg  
College of Business

Joseph A. Starratt  
Libraries

Elizabeth A. Walker  
University Honors College

**LEGAL COUNSEL**

Antoinette Ursich  
Division Chief, WSU Division of State Attorney General’s Office

**CHANCELLORS**

Harold A. Dengerink  
WSU Vancouver

Vicky Carwein  
WSU Tri-Cities

Brian Pitcher  
WSU Spokane
Washington State University

www.wsu.edu

Washington State University provides quality education for undergraduate and graduate students within a caring and engaged community. The University's motto—"World Class. Face to Face."—reflects that.

Considered one of the leading public research universities in America, WSU has 10 colleges and a graduate school. WSU offers strong and varied academic programs. The liberal arts and sciences have an important place in the curriculum, along with business, communication, education, architecture, pharmacy, nursing, and the traditional land-grant disciplines of agriculture, engineering, and veterinary medicine.

WSU offers more than 250 fields of study, including majors, minors, options, and certificate programs. Bachelor's degrees are available in all major areas, with master's and doctoral degrees available in most. The undergraduate core curriculum, including world civilizations courses and writing requirements, is nationally recognized. WSU's Honors College is one of the oldest and most respected all-university programs for academically talented students. WSU confers nearly 6,000 bachelor's, master's, professional, and doctoral degrees statewide in a typical year.

More than 1,400 instructional faculty members provide learning opportunities that open students' minds to the most recent knowledge and discoveries. The chance for students to know and work closely with their teachers is a WSU tradition.

The state's land-grant research university, Washington State University was founded in Pullman in 1890. Today, it is co-located in Pullman and Spokane with additional campuses in the Tri-Cities (Richland, Pasco, and Kennewick) and in Vancouver, across the Columbia River from Portland, Oregon. Regional Learning Centers and the Distance Degree Programs offer access to WSU degrees statewide and beyond.

WSU programs in Spokane, about 80 miles north of Pullman, play an important role in the University's educational and research mission. The Intercollegiate College of Nursing/WSU College of Nursing is located there and Doctor of Pharmacy students are based in Spokane for their third and fourth professional years. Also completing their degrees in Spokane—at the Interdisciplinary Design Institute at WSU Spokane's Riverpoint campus—are architecture, interior design, landscape architecture, and construction management students. In August 2008, the first class of WWAMI (Washington, Wyoming, Alaska, Montana, Idaho) medical program students started at WSU Spokane. WSU, at the Pullman campus, has been a part the regional medical program since 1972.

The university is committed to providing a quality educational and research experience for its undergraduate and graduate students, President Elson S. Floyd says. He puts high priority on WSU being a research leader, having a global presence and serving the needs of Washington citizens.

Washington State University realizes the importance of research in all sectors of society. It has produced an impressive and extensive history of basic and applied research since its founding. WSU is known for research strengths in areas as diverse as biotechnology, shock physics, viticulture, sleep, wood technology, computer chips, and advertising's impact on healthy decision-making.

WSU's research quality is reflected in the fact that nine of its faculty members have achieved the country's highest honor for scientists and engineers as members of either the National Academy of Sciences or the National Academy of Engineering. Another quality indicator is the University's continued success in increasing funding for its research efforts. Both facts support WSU's position among the nation's premier research institutions.

The Pullman campus serves more than 18,600 undergraduate and graduate students, including those in the Distance Degree Programs. Statewide, WSU has more than 24,300 students.

WSU's Pullman campus is residential in nature, with some 48 percent of the student body living in residence halls, University-owned single and family student apartments, and fraternity and sorority houses. Students enjoy a variety of cultural activities in an area that benefits from two universities. The University of Idaho is eight miles away in Moscow, Idaho.

WSU students of diverse social, economic, and ethnic backgrounds from throughout the nation and more than 90 foreign countries come together in an academic community committed to education and leadership development.

Located on College Hill in Pullman, WSU’s 620-acre core campus features modern classrooms and libraries, laboratories, museums, student residences, and recreational and athletic facilities. For example, the 94,000-plus-square-foot Samuel H. Smith Center for Undergraduate Education includes classrooms with Internet access at every seat, a cyber café, computer labs, and much more. Students enjoy using the newly-renovated Compton Union Building, the Student Recreation Center and taking part in one of the largest university-sponsored intramural programs in the nation.

Loyal fans, including students, faculty, staff, and alumni, cheer on the WSU Cougar women's and men's intercollegiate athletic teams, members of Pac-10 Conference.

Degrees Granted

**Accounting, MAcc**

**Agribusiness Economics and Management, BS**

**Agricultural Economics, PhD**

**Agricultural and Food Systems, BS**

**Agriculture, MS**

**American Studies, BA, MA, PhD**

**Animal Sciences, BS, MS, PhD**

**Anthropology, BA, MA, PhD**

**Apparel, Merchandising, and Textiles, BA, MA**

**Applied Economics, MA**

**Architectural Studies, BS**

**Architecture, MArch, MS**

**Asian Studies, BA**

**Biochemistry, BS, MS, PhD**

**Biological and Agricultural Engineering, MS, PhD**

**Biology, BS, MS**

**Biotechnology, BS**

**Botany, MS, PhD**

**Business Administration, BA, MBA, PhD**

**Chemical Engineering, BS, MS, PhD**

**Chemistry, BS, MS, PhD**

**Civil Engineering, BS, MS, PhD**

**Communication, BA, MA, PhD**

**Comparative Ethnic Studies, BA**

**Computer Engineering, BS, MS, PhD**

**Computer Science, BA, BS, MS, PhD**

**Construction Management, BS**

**Criminal Justice, BA, MA, PhD**

**Crop Science, BS, MS, PhD**

**Design, DDes**

**Digital Technology and Culture, BA**

**Economics, BA, PhD**

**Education, BA, EdM, MA, MIT, EdD, PhD**

**Electrical and Computer Engineering, PhD**

**Electrical Engineering, BS, MS**

**Engineering, MS**

**Engineering and Technology Management, METM**

**Engineering Science, PhD**

**English, BA, MA, PhD**

**Entomology, MS, PhD**

**Environmental Engineering, MS**

**Environmental and Natural Resource Sciences, PhD**

**Environmental and Resource Economics and Management, BS**

**Environmental Science, BS, MS**

**Exercise Physiology and Metabolism, BS**

**Exercise Science, MS**

Fine Arts, BA, BFA, MFA

Food Science and Human Nutrition, BS

Food Science, MS, PhD

Foreign Languages and Cultures, BA, MA

Genetics and Cell Biology, BS, MS, PhD

Geology, BS, MS, PhD

Health Policy and Administration, MPH

History, BA, MA, PhD

Horticulture, BS, MS, PhD

Hospitality Business Management, BA

Human Development, BA, MA

Human Nutrition, MS

Humanities, BA

Individual Interdisciplinary, PhD

Interior Design, BA, MA

Kinesiology, BS

Landscape Architecture, BLA, MS

Leadership and Professional Studies, BA

Liberal Arts, BLibA

Materials Science, PhD

Materials Science and Engineering, BS, MS

Mathematics, BS, MS, PhD

Mechanical Engineering, BS, MS, PhD

Microbiology, BS, MS, PhD

Molecular Plant Sciences, MS, PhD

Music, BA, BMus, MA

Natural Resource Sciences, BS, MS

Natural Resources, MS

Neuroscience, BS, MS, PhD

Nursing, BS, MNurs, PhD

Nutrition, PhD

Pharmacology and Toxicology, MS, PhD

Pharmacy, PharmD

Philosophy, BA, MA

Physics, BS, MS, PhD

Plant Pathology, MS, PhD

Political Science, BA, MA, PhD

Psychology, BA, BS, MS, PhD

Public Affairs, BA, MPA

Regional Planning, MRP

Science, BS

Social Sciences, BA

Social Studies, BA

Sociology, BA, MA, PhD

Soil Science, BS, MS, PhD

Speech and Hearing Sciences, BA, MA

Sport Management, BA

Statistics, MS

Theatre Arts and Drama, RA

Veterinary Medicine, DVM

Veterinary Science, BS, MS, PhD

Women's Studies, BA

Zoology, BS, MS, PhD
Achieving Our Vision:

World Class. Face to Face.

Washington State University embarked on a major effort to plan its future in fall 2000. The work, which involved the entire University community, led to this strategic plan approved by the Board of Regents in January 2002. The four strategic goals address issues that are essential to the University's future success in carrying out its mission and achieving its vision. The goals will guide actions and decisions in every area of WSU through the work of the implementation council, four implementation teams and individual units.

Vision

Washington State University offers a premier undergraduate experience, conducts and stimulates world-class research, graduate and professional education, scholarship and arts, and provides an exemplary working and learning environment that fosters engagement.

Mission

As a public, land-grant and research institution of distinction, Washington State University enhances the intellectual, creative, and practical abilities of the individuals, institutions, and communities that we serve by fostering learning, inquiry, and engagement.

Core Values

Washington State University is guided by a commitment to excellence embodied in a set of core values.

- Inquiry and Knowledge
  Intellectual growth is at the heart of Washington State University's mission. We are committed to developing an informed citizenry, to fostering a love of learning and intellectual inquiry in all its forms — empirical, theoretical, and aesthetic — and to developing the capacity for thoughtful reasoning.

- Engagement and Application
  We are committed to partnerships focused on applying knowledge and expertise to address complex issues, especially, but not only, as that application enhances the partners' knowledge and understanding.

- Leadership
  We are guided by an ethic of leadership and service that recognizes the importance of identifying, articulating, and responding to the interests and needs of Washington State University's diverse constituencies.

- Diversity
  We are committed to a culture of learning that challenges, inspires, liberates, and ultimately transforms the hearts, minds, and actions of individuals, eliminating prejudice. Our differences are expressed in many ways, including race, sex, age, physical and mental ability, sexual orientation, religion, class, philosophy, and culture. Respect for all persons and their contributions is essential to achieving our mission.

- Character
  Washington State University aims to create, through our work and our relationships, an environment that cultivates individual virtues and institutional integrity. To serve our diverse communities, we must first be a community that extends mutual respect and regard for all individuals and protects their right to free expression.

- Stewardship
  Careful shepherding of our financial, human, capital, and intellectual resources is necessary for us to realize our values. In addition, the mission of the institution is most likely to be achieved when faculty, staff, and students at Washington State University take responsibility for upholding the full scope of these values.

- Teamwork
  A great strength of a university of distinction is the initiative and individual creativity of its members. But we also value a common commitment to achieving the institution's goals, a collective spirit, a dedication to teamwork, that transcends private concerns.

Strategic Goals

1. Offer the best undergraduate experience in a research university.
2. Nurture a world-class environment for research, scholarship, graduate education, the arts, and engagement.
3. Create an environment of trust and respect in all we do.
4. Develop a culture of shared commitment to quality in all of our activities.

Washington State University Foundation

WSU Foundation, 800-448-2978, PO Box 641925, Pullman, WA 99164-1925
wsufoundation.wsu.edu

The mission of the Washington State University Foundation is to promote, accept, and maximize private support for programs, initiatives, and properties of Washington State University and its regional campuses. The WSU Foundation also prudently manages, invests, and stewards the assets entrusted to it by WSU and its alumni, friends, and donors. Since its creation in 1979, the WSU Foundation has raised more than $925 million in support of WSU’s world-class educational experience, research, and community outreach. Private contributions to the WSU Foundation fund scholarships for deserving undergraduate and graduate students, attract and retain top faculty, build state-of-the-art facilities, and enable cutting-edge research and educational programs to flourish at Washington State University. For more information, visit the WSU Foundation's web site or e-mail: foundation@wsu.edu. Mail inquiries may be addressed to WSU Foundation, PO Box 641925, Pullman, WA 99164-1925.
The Center for Civic Engagement (CCE) promotes student learning through civic engagement in community service, service learning, advocacy, and civic leadership. Student civic engagement includes the exploration of “self in society” through enhanced self-awareness, knowledge of community issues and development of civic responsibility. The CCE is a resource for students seeking to make stronger connections with community and faculty seeking to incorporate community-based learning and citizenship development into the academic curriculum. Established partnerships with local, regional, national and international organizations provide students with diverse opportunities for learning the skills necessary to make positive changes in the world.

Community Projects and Placements. The CCE offers hundreds of organized community projects each year led by student project leaders who coordinate project details, provide transportation, and facilitate post-project reflection. CCE staff work with student organizations or other groups to initiate, develop, and implement campus and community-based projects to address or raise awareness of a community issue. CCE partnerships with community organizations provide long-term placement opportunities tailored to meet personal, academic or career goals. Student project leaders provide selection assistance and support.

Academic Service Learning. Academic courses that integrate service learning are available in many departments at WSU. Choose from over 70 classes a year that include community-based learning for a memorable and meaningful experience.

Students in Service. Students engaged in long-term community service may be eligible for a ‘Students in Service’ education award through AmeriCorps.

Events. Annual CCE events provide numerous opportunities for student civic engagement, including National Hunger and Homelessness Awareness Week (November); Campus on the Run (March); and Civic Engagement Week (April).

Compton Union Building
www.cub.wsu.edu

The Compton Union Building is more than a building—it is an educational program of out-of-class activities designed to provide for the student’s personal, social, and cultural development; practice in leadership; and management and enjoyment of leisure activities. The Compton Union is centrally located and is the campus community center. The Union has facilities for student activities, conferences, and conversations. Food services include an espresso shop, fast food, international cuisine, university catering, and a full-service restaurant. The Compton Union also offers quiet and active lounges, meeting rooms, a movie theater, a copy center, an art gallery, student legal services, commercial banking, mailing services, the Student Book Corporation, and more.

Other groups within the Compton Union include the Associated Students of Washington State University (ASWSU), the Graduate and Professional Students Association (GPSA), the Residence Hall Association (RHA), the Center for Fraternity and Sorority Life, Multicultural Student Services, the Gender Identity/Expression Sexual Orientation Resource Center (GIESORC), and the Office of Campus Involvement. Students can explore community service opportunities at the Center for Civic Engagement ranging from one day to semester-long placement.

The CUB has been closed for a two-year renovation and will re-open August 11, 2008.

Scholastic Societies
Alpha Epsilon Rho. Alpha Epsilon Rho is a broadcasting honorary in the Edward R. Murrow School of Communication. Represented by the National Broadcasting Society, AERho is a nationwide organization made up of the very best students, faculty, and professional communicators in the broadcasting industry. Formed in 1943, it was the first national organization whose primary purpose was to bring communication students and professionals together. The WSU chapter of AERho is involved in many activities, including sponsoring the end-of-the-year banquet for the School of Communication.

Mortar Board. Mortar Board is a national honor society of college seniors recognized for their scholarship, outstanding and continual leadership, and dedicated service to the college or University community. It is a member’s willingness to continue to serve that differentiates Mortar Board from an honorary organization. Acceptance of membership indicates the person’s agreement to fulfill the responsibility for active participation in the chapter. Members must have at least a 3.0 cumulative grade point average to be considered for membership. Each spring, the chapter recognizes freshmen who earn at least a 3.5 gpa for the previous fall semester.

Phi Beta Kappa. Phi Beta Kappa, the oldest national honorary fraternity in the United States, was established to promote scholarship and friendship among students and graduates of American colleges and universities. The WSU chapter of Phi Beta Kappa, established in 1928, was one of the first chapters founded at a land-grant university. To be considered for selection, students must be majoring in a liberal arts discipline, have 75 percent of their course work in liberal arts, and have earned at least 45 of their total credits from WSU with a minimum 3.45 gpa. Only about 15 percent of the institutions of higher education in the United States have programs sufficiently strong in the sciences and liberal arts to warrant membership.

Phi Delta Kappa. Phi Delta Kappa is an international professional fraternity for men and women in education. The membership is composed of recognized leaders in the profession and graduate students in education whose leadership potential has been identified. Members include classroom teachers, school administrators, college and university professors, and educational specialists of many types. In Phi Delta Kappa, they find a fellowship based on common interests and ideas devoted to the promotion of free public education. Membership is by chapter invitation.

Phi Kappa Phi. Phi Kappa Phi, the first national scholastic society to recognize superior scholarship in all fields of study, was established in 1897. The WSU chapter was founded in 1919. Students from all disciplines within the University are eligible for membership. Candidates are selected from the upper 10 percent of the senior class and the top 5 percent of the junior class each year. Graduate students are also eligible for membership.

Phi Sigma Iota. Phi Sigma Iota was founded in 1922 to recognize outstanding ability and high standards of excellence in the field of foreign languages. It is an international society, and, as such, promotes international communication and understanding. Candidates are selected from undergraduates majoring or minoring in a foreign language who maintain at least a 3.0 gpa. Graduate students are also eligible for membership.

Student Government
Undergraduate Students. Undergraduate students at Washington State University are represented by elected officers and representatives through the Associated Students of Washington State University (ASWSU). ASWSU is interested in a wide range of issues relating to the student’s life at WSU and is led by the president and vice president. The senate is directly involved in the allocation of funds for programming and the establishment of operating procedures. Through the senate, ASWSU has developed a number of student committees and programs in the areas of education, entertainment, and recreation. Visit the Web site at aswsu.wsu.edu.

Graduate and Professional Students. Graduate and professional students are members of the Graduate and Professional Students Association (GPSA). Visit the Web site at gpsa.wsu.edu.

Student Publications
Student publications provide opportunities for students to enhance their learning through hands-on application of journalistic, communication and advertising skills. Students work in a real-world environment by providing information to WSU students, faculty, staff and the general public through such publications as The Daily Evergreen and the Chinook yearbook. The Evergreen is published five days a week during the school year and twice a week during summer session.

The Daily Evergreen’s Web site provides students with the opportunity to expand their reporting and storytelling skills using video and audio equipment in new and innovative ways. Other multimedia opportunities are also available.

Student Publications is open to students in all disciplines at WSU. Positions are available for writers, editors, designers, photographers and advertising sales representatives.
Campus Involvement strives for knowledge, integrity, and a commitment to civic engagement and social justice. It is committed to developing students of Washington State University to be critically reflective and engaged participants in a global society, effective communicators, rigorous scholars, and passionate leaders who welcome the challenge to work and collaborate on behalf of their communities.

In achieving these goals, Campus Involvement is dedicated to fostering a campus that embraces diversity by encouraging a culture of understanding, belonging, and civility; a learning community with close student and academic engagement fostering partnerships for discovery; diverse and innovative opportunities for leadership development; a work environment where community is valued, respected, and promotes continuous improvement; effective relationships through responsible stewardship of resources, innovation, and creative problem solving; and rituals affirming tradition and where change is shared and celebrated. Programs include:

- **Up All Night.** Up All Night offers free weekend entertainment for WSU students. These themed programs always offer a numerous forms of entertainment such as movies, bands, comedians, hypnotists, magicians, interactive games, as well as arts and craft making projects. Up All Night also sponsors many evening self-development nights, which include speakers, panel discussions, debates, College Bowl, Poetry Slam, and, as always, free food, fun, and entertainment.

- **Arts and Culture.** Campus Involvement is a major contributor to the arts scene on the WSU campus. Each year the Visual, Performing, and Literary Arts Committee (VPLAC) presents a series of musical and theater performances, literary readings, and visual arts exhibits that relate to a central theme. Art à la Carte (in collaboration with the Museum of Art) offers a series of noontime arts programs each semester featuring local artists and WSU faculty and students. The Compton Union Gallery on the Move features work by local and visiting artists, student projects, traveling exhibits, and displays that are entertaining as well as educational.

- **Student Organization Services.** Washington State University offers the opportunity to be involved in over 240 different student organizations. Registered Student Organizations (RSOs) represent the full spectrum of interests of WSU students in areas including cultural activities, academics, recreation, religious, social, and other interests. We also coordinate registration of student events on campus. Campus Involvement serves as a clearinghouse and resource center for students in assessing skills, interests, and work values; connecting academic majors to internship opportunities and future careers; preparing for graduate/professional school; and planning job search strategies. Counselors also offer daily drop-in hours for review of resumes and cover letters. Each semester, Career Services offers two 1-credit courses (Univ 100 and Univ 300) to help students enhance their career decision-making skills and better understand how to connect their academic experiences with the world of work. An interactive computer-assisted program (called SIG+) is also available to help students with self-assessment and information about career options. The Career Resource Center maintains information on WSU majors, occupations, job search and graduate school preparation materials, employer literature and directories, and Internet resources. In addition, Career Services sponsors two major career fairs and associated events each year.

Career Services offers placement/credential file services. Primarily used by education graduates or students applying to graduate or professional schools, placement/credential file hold letters of recommendation.

**Center for Human Rights**

**French Administration Building, Room 225**

509-335-8288

www.chr.wsu.edu

The mission of the Center for Human Rights (CHR) is to carry out investigative and monitoring activities to ensure equal employment opportunity and respect for human rights at WSU and promote improvements in relevant policies, practices, and procedures. CHR conducts educational activities that inform the broader WSU community about equal employment opportunity and human rights issues, and assists University units to detect and address relevant concerns before they become problems.

**CHR’s Program Areas**

- Equal Employment Opportunity/Affirmative Action (EOO/AA) Compliance
- Discrimination, Sexual Harassment and Hate/Bias Complaint Investigation
- Human Rights, Workforce Recruitment and Diversification, and EEO/AA
- Education
- Scholarly Activities (cosponsored with academic units)
- Public Events/Forums
- Outreach Activities
- Workforce Recruitment and Diversification Efforts

**WSU Children’s Center**

509-335-8847

The WSU Children’s Center offers part or full-time child care and early education for children of WSU students, staff, and faculty. The center is accredited by the National Academy for Early Childhood Programs, and is designed to meet the child care needs of parents while providing intellectual, social, emotional, and physical development opportunities for children. Activities vary from quiet to active, group to individual, structured to unstructured. Children are grouped developmentally by age. Breakfast, lunch, and snacks are provided. The Center is licensed by the Washington Department of Social and Health Services for one hundred and seventy one children. It is open year round and hours of operation are Monday to Friday from 7:30 a.m to 5:30 p.m.

Evening child care is also available to students, staff, and faculty families regardless of whether or not the child attends the daytime program. Evening care operates during the academic year with hours of operation Monday to Thursday from 5:30-9:30 p.m.

The center is available to students for observation and participation for classes. Work-study jobs are also available.

CCAMPIS grants are available to assist eligible student parents with child care costs at accredited centers in the Pullman area. Inquire at the Children’s Center.
Cooperative Courses with the University of Idaho

Cooperative courses between Washington State University and the University of Idaho provide enriched educational opportunities for students of both universities and allow better utilization of supporting resources such as libraries and laboratories. The sharing of faculty and facilities fosters the exchange of ideas and enhances academic ties between the two communities.

Approved cooperative courses are listed in the departmental section of this catalog and include the University of Idaho (UI) equivalent course prefix and number within the course description. Courses are identified as (1) cooperative course taught by UI, open to WSU students; (2) cooperative course taught by WSU, open to UI students; and (3) cooperative course taught jointly by WSU and UI.

Cooperative courses taught by the University of Idaho are footnoted with an “i” in the Time Schedule. WSU students desiring to enroll in cooperative courses taught by UI will register for the course at WSU but attend class at UI in accordance with the dates and times listed in the WSU Time Schedule. Students will follow the regular WSU registration procedure and will be charged according to the WSU fee structure. Upon completion of the course, the credit and grade will be recorded on the student's official WSU transcript.

Counseling and Testing Services

Lighty Building Room 280
Counseling: 509-335-4511
Testing: 509-335-1744
After hours crisis: 509-335-2159
www.counsel.wsu.edu

Counseling Services offers psychological counseling and consultation to WSU Pullman students who have paid the health fee. Psychologists and counselors are available to provide confidential assistance to students with personal, social, and academic concerns. Groups and workshops are offered on such topics as test anxiety, stress management, substance abuse, relationships, and sexual orientation/gender identity. Crisis services, including the Sexual Assault Response Program, and consultation are available on a 24-hour basis. Call 509-335-4511 or stop by 280 Lighty for appointments or information.

Testing Services provides the University with a comprehensive testing program. National, state, and personal testing is available by appointment at 509-335-1744.

The Disability Resource Center

Administration Annex, Room 205
509-335-3417
www.drc.wsu.edu

The Disability Resource Center (DRC) offers a variety of legally mandated services to students with documented disabilities (both temporary and ongoing), including accommodations appropriate to academic work and campus life. These accommodations may include alternative testing services, sign language interpretation, alternative print media, notetaking assistance, and assistive technology.

The Center works collaboratively with the university community to ensure students’ equal access to university programs and academic activities according to state and federal law, under Sec. 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990.

Educational and Public Media

www.epm.wsu.edu

Educational and Public Media (EPM), www.epm.wsu.edu, is responsible for public broadcasting, interactive video services, web-based audio and video applications, direct support of academic classrooms and other telecommunications services. EPM can trace its history back to a Morse code radio transmitter built by the mechanical engineering faculty more than 90 years ago. Edward R. Murrow first used a microphone at KWSC in the latter 1920s. Television was demonstrated on the campus in 1939. WSU became one of the first universities to use interactive video instruction in 1980 and now operates one of the two or three largest such systems in the country.

Broadcasting: WSU operates thirteen NPR-member radio stations and two PBS-member television stations serving significant audiences in Washington, Idaho, Oregon and (radio only) British Columbia.

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Pharmacy 509-335-5742
The full-service pharmacy is located inside the medical clinic and is open Monday through Friday. The pharmacy will transfer prescriptions from other pharmacies and accept prescriptions from providers outside of Health & Wellness Services. The pharmacy will bill most insurance companies for you.

Health Promotion 509-335-5759
The Health Promotion unit researches and provides education on health topics and lifestyle choices that are relevant to students. The HP unit is located on the second floor of the clinic building.

Medical Insurance 509-335-8216
student.insurance@wsu.edu
Washington State University sponsors a medical insurance plan for students who are enrolled in 7 or more credits. Plan features include coverage for surgery, hospitalization, vision, prescription drugs, and more. Coverage is available worldwide. All International students are required to enroll in this plan.

Information Technology Services (ITS)

ITS Services & Accounts Desk
Information Technology Building 2088
509-335-3355
it.sas@wsu.edu
The ITS Services & Accounts Desk provides telephone service and voice mail to all University residence halls, the Yakama apartments, and administrative offices. Telephone troubleshooting and repair service is also available.

- Residence Halls: All residence hall phones come with a data connection and a digital telephone instrument with the option of activating phone service with or without voice mail. Voice mailboxes are created, modified, and deleted at our office in addition to troubleshooting problems with voice mail passwords, greetings, and set up. Long distance calls must be paid by a calling card, prepaid phone card, etc. Students may obtain telephone statements which include monthly and/or long distance charges via the Internet.

- Yakama Apartments: Yakama apartments are wired directly to WSU's telephone switch and service is provided by WSU. Ethernet, providing high speed, uninterrupted data communications, is also an option. A contract must be completed by the student in our office for phone, voice mail, and/or ethernet service. Phone instruments must be supplied by the student. Statements may be found at the ITS Web site, infotech.wsu.edu.

- Other University Apartments: WSU does not provide phone or data service in the WSU owned apartments. Residents are required to contact Verizon directly (800-483-4100). With Verizon, a resident has their choice of long distance carrier and different monthly service plans. Statements will be sent directly to the student from Verizon. Payment will be sent back to Verizon.

The ITS Services & Accounts Desk also assists students, faculty, and staff with creation, management, and troubleshooting of e-mail accounts, Network IDs, one time access codes, AIS accounts, active directory, RONET, student billing, and eInfoCenter.

ITS Helpdesk Information Technology Building, Room 2091 509-335-HELP
The ITS Helpdesk offers many technology opportunities to students, staff, and faculty across campus. Student Computing Services (SCS) Technology Labs offer PC and Macintosh computers running word processing, spreadsheet, multimedia, graphics and video editing, and other commonly used software. In addition, a variety of specialized hardware such as laser color and B&W printers, scanners, CD and DVD burners, Zip drives, and digital video editing stations adorn the Technology Labs. Also, digital cameras, digital video cameras, and wireless ethernet laptops are available for checkout in the labs. SCS Technology Labs are located in Gannon/Goldsworthy S8, Stephenson Residential Complex 206, Streit Hall 60, Honors Hall 10, and SCUE 302-402. A student technology consultant is always on duty to assist customers with using the computers and software. Students living in a residence hall have unlimited access to the residence hall labs in Stephenson, Streit, Gannon, and Honors. In addition to unlimited residence hall lab access, free software training is available to residents in Thompson 1. For students living off-campus, semester, yearly, and hourly passes are available for purchase at each lab or can be purchased directly from the METRO registration page. Students purchasing year-long or semester passes also have access to free software training in the Training Lab in Thompson 1.

The ITS Helpdesk also offers the ResNet program which provides ethernet cards, cables, and installations to students living in the residence halls on campus. Ethernet cards and cables are available for purchase in the five labs. Network Support Services (NSS), for a fee, can help students who wish to bring their computer into ITB 2901.

The ITS Helpdesk Student HelpDesk is located in ITB 2091. HelpDesk consultants are available to answer questions regarding UNIX and Network ID accounts. In addition, the HelpDesk provides Network Support Services to students, both on and off-campus, who connect to the campus network using either ethernet or the WSU dial-up modem pool. NSS also helps with other network related issues such as virus elimination. Information technology services is available to students by coming to the HelpDesk or by telephone.

WSU Telecommunication Services for Students
Information Technology Services provides phone and data service for the Yakama apartments.

- Yakama Apartments: The Yakama apartments are wired directly to WSU's telephone switch and must use WSU services. The phones come with the option of voice mail service. Occupants have the option to acquire long distance services from their favorite long distance carrier and to connect to that carrier using the carrier-provided toll free number or have direct-dial long distance. The standard offering in the Yakama apartments is analog and residents are responsible for providing their own telephone instruments. Each apartment is provided with an optional 10MB data connection that provides high speed access to WSU data services and the Internet.

- Residence Halls: Each room is provided with a standard 10MB data connection that provides high speed access to WSU data services and the Internet, for each of the residents in the room.

- Other University Apartments: WSU does not provide phone or data service in the WSU owned apartments (other than Yakama as stated above). Residents are asked to contact Verizon for phone service and a local internet service provider for data service. First Step Research also provides wireless data service to most of the WSU apartments and can be contacted for availability.

- Sprint Cell Service: Sprint cell service is available to students under the WSU Sprint Wireless agreement.

International Programs

Bryan Hall, Room 206 509-335-2541
www.ip.wsu.edu
International Programs (IP) at Washington State University has the overall responsibility for promoting, supporting, and coordinating the University's international activities. As the land-grant institution for the state of Washington, internationalization of the University's curricula and programs is an established priority. Internationalization is the incorporation of appropriate international content, materials, activities, and understandings into the teaching, research, and public service/outreach programs to enhance their relevance in an increasingly interdependent world. Students interested in the Global Studies Minor should contact International Programs for additional information. International Programs at WSU is organized into programmatic areas to serve its University-wide responsibilities.

IP/GLOBAL STUDIES

Bryan Hall, Room 206 509-335-2541
www.ip.wsu.edu
An interdisciplinary Global Studies minor is available. Students interested in the Global Studies Minor should contact International Programs for additional information.
IP/Office of International Students and Scholars (OISS)
Bryan Hall, Room 108
509-335-4508
www.ip.wsu.edu/oiss
OISS assists international students and visiting faculty at WSU in the immigration requirements and academic and social adjustments necessary for a successful educational, research, and cultural experience at WSU. OISS is also responsible for assisting departments and the University in filing immigrant petitions for international faculty hired into permanent tenure track positions.

IP/International Center
Smith Gym, Room 214
509-335-4223
www.ip.wsu.edu/intlcenter
The International Center is a joint initiative of the International Students’ Council and International Programs. The International Center offers services to international and domestic students as well as faculty and staff with international interests. The International Center hosts a variety of programs, serves as a home to the International Students’ Council and international registered student organizations, and provides a cross-cultural gathering place.

IP/Education Abroad (EA)
Bryan Hall, Room 105
509-335-6204
www.ip.wsu.edu/education_abroad
Education Abroad is responsible for advising students who wish to study abroad and helping incoming exchange students settle into WSU campus and community life. With many program choices available for WSU students going abroad to study, students are encouraged to incorporate an overseas experience into their major or minor field of study. The EA office will assist students in finding the best program for them, whether it is through a third-party provider, an exchange program, a faculty-led program, or an academic internship. Over 500 students each year take advantage of the opportunity to engage in academic and culturally enriching experiences. The EA office assists students with all aspects of studying abroad: identifying a program, applying, obtaining financial aid or scholarships, selecting courses, obtaining travel documents and so on. Students interested in studying abroad are encouraged to contact the EA office early in their academic career.

IP/International Research & Development (IPR&D)
Bryan Hall, Room 206
509-335-2980
www.ip.wsu.edu
IPR&D has administrative responsibility for the establishment, facilitation, and coordination of University research, economic development, and inter-institutional projects in developing and industrialized countries.

IP/Intensive American Language Center (IALC)
McAllister Hall, Room 116
509-335-6675
www.ip.wsu.edu/ialc
The Intensive American Language Center provides concentrated English Language training for non-native speakers of English who are preparing for university studies or who wish to improve their English for professional or personal purposes. Classes meet four to five hours per day, five days per week for eight-week sessions. There are five eight-week sessions per year. Sessions run concurrently with WSU’s academic calendar. Thus, students who wish to enter WSU and who are otherwise eligible for admission can move directly to university studies upon successful completion of the language center curriculum.

The language center also offers various English courses for non-native speakers who are enrolled at WSU and would like additional language support, and it provides international teaching assistant testing for the Graduate School.

The language center provides non-university credit classes in reading, speaking, composition, grammar, listening, various special interest courses, and the Test of English as a Foreign Language (TOEFL) preparation, using both classrooms and computer labs. Advanced students concentrate on academic studies. Students are placed in one of six levels, according to their individual proficiencies in English.

COURSES INCLUDE: Beginning and Low Intermediate Levels—Listening and Speaking (6 hrs/week), Reading and Writing (9 hrs/week), Grammar (3 hrs/week); Intermediate and High Intermediate Levels—Listening and Speaking (9 hrs/week), Reading and Composition (9 hrs/week), Grammar (3 hrs/week); Advanced Level—Listening and Speaking (9 hrs/week), Reading and Composition (9 hrs/week), Academic Writing (6 hrs/week), Academic Listening Skills and Strategies (3 hrs/week); Graduate School Preparation—Listening and Speaking (9 hrs/week), Reading and Composition (9 hrs/week), Research Writing (6 hrs/week); Electives include—Pronunciation (3 hrs/week), Conversation (3 hrs/week), Grammar Workshop (3 hrs/week).

Any non-native speaker of English who is at least 18 years of age, knows the English alphabet and corresponding sounds, and has completed secondary school may attend the Intensive American Language Center. Students may enroll full- or part-time, depending on their visa status. The language center also negotiates special courses or package programs with domestic and foreign agencies on a contract basis. To apply or to obtain more information about the language center, contact the Intensive American Language Center.

The Libraries
www.wsulibs.wsu.edu
The libraries system, with collections of more than 7 million items (including over 2 million book volumes), is an integral part of WSU’s educational resources. The libraries receive approximately 30,000 serial publications, including scientific, scholarly, and specialized journals and periodicals; regional and national newspapers; foreign, federal, state, and municipal documents; United Nations publications; and other materials in a variety of print, electronic, multimedia, and micro-formats.

The libraries’ online catalog, Griffin, provides access to information on books, journals, documents, media materials, and select electronic resources available through the libraries. Summit, a joint catalog that WSU shares with 34 academic institutions, provides an online requesting service for book delivery to library circulation desks. The libraries provide Web access to a wide variety of electronic indexes and abstracts and thousands of full-text electronic books and journals. Reference librarians provide personal assistance and reference service to users of these electronic and traditional collections, offering instruction to students on use of library resources, work with teaching faculty to develop the collections, and provide access to materials from other libraries.

The Holland and Terrell Libraries provide extensive collections in the social sciences, business, fine arts, and the humanities, as well as sophisticated service components designed to assist students, faculty, and researchers in utilizing these resources. Manuscripts, Archives, and Special Collections contain rich collections of primary resource materials including books, manuscripts, and photographs to support study and research in a number of fields, including Pacific Northwest history; modern British literature, regional publishing, veterinary history, agricultural history, wildlife and outdoor recreation, WSU history, and other subjects. Media Materials and Reserves houses equipment and provides videotapes, films, slides, audio tapes, and other media for classroom instruction and checkout, as well as housing Course Reserves. Special media collections include the WSU-UI Regional Media Collection, the McCaw Classic Feature Films, Gnaedinger Historical Films, Pitzer Classic Radio Tapes, and others.

Owen Science and Engineering Library supports study and research in the pure and applied sciences with substantial traditional and electronic collections in these disciplines.

The collections of the George W. Fischer Agricultural Sciences Library in Johnson Hall Annex emphasize support for plant and entomological sciences.

The Health Sciences Library, located in Wegner Hall, offers top quality biomedical collections and services to support the instructional and research needs of the colleges of Veterinary Medicine and Pharmacy.

The George B. Brain Education Library in Cleveland Hall offers a wide range of materials and services to meet research and instructional needs from preschool through higher education and adult education.

The Architecture Library which supports programs in the School of Architecture and Construction Management, is located in Carpenter Hall.

In addition, library facilities and services are available at the Spokane, Tri-Cities, and Vancouver campuses, and at the Intercollegiate College of Nursing (Spokane) and the WSU Energy Library (Olympia).
The Office of Multicultural Student Services
Compton Union Building, Room 409
509-335-7852
www.mss.wsu.edu

The Office of Multicultural Student Services offers culturally relevant services and programs to support the successful transition, persistence, achievement, and graduation of multicultural students attending Washington State University. Other goals are to expand cultural awareness, to celebrate our differences and similarities, and to heighten the appreciation of cultural and racial diversity within the University and Pullman communities.

There is an exhibit area on the first floor of College Hall. The permanent exhibits focus on special topics are hosted each year. The exhibit area is open 9 a.m. to 4 p.m. every day that classes are in session. Group tours may be scheduled two weeks in advance by calling. Individuals interested in working with the research collections should call 509-335-4314.

The Museum of Anthropology
College Hall, Room 110
509-335-3936
libarts.wsu.edu/anthro/museum

The Museum of Anthropology is one of the major repositories for archaeological collections in the Northwest. Most of these collections are from federal and state lands in eastern Washington and the Cedar Mesa Region of Utah. The collections represent important research and teaching resources for WSU as well as others. The collections are also important to the local American Indian tribes. These collections are maintained under partnership agreements with a number of federal agencies and are integral to the teaching, research, and service functions of WSU’s Department of Anthropology. The museum also has a small, but important, collection of ethnographic materials from around the world. There is an exhibit area on the first floor of College Hall. The permanent exhibits explore human evolution, biological diversity, and the prehistoric people of the lower Snake River region. Different short-term and traveling exhibits focusing on special topics are hosted each year. The exhibit area is open 9 a.m. to 4 p.m. every day that classes are in session. Group tours may be scheduled two weeks in advance by calling.

The Museum of Art
Fine Arts, Room 6077
509-335-1910
www.wsu.edu/artmuse

The Museum of Art was established in 1974 around a core collection of American paintings assembled by former WSU President E. O. Holland and former WSU Regent Charles Orton. Dedicated to serving the educational purposes of WSU and the people of Washington, the museum presents changing exhibitions ranging from fine arts and fine craft to architecture and design. Exhibitions originated by the museum staff have toured the nation. The museum also offers a wide variety of outreach programs including docent tours, symposia, films, and other special events.

The museum’s collection of American nineteenth- and twentieth-century paintings, drawings, and prints has grown in the past years through donations and important gifts from collectors and alumni in the Northwest. Aspects of this permanent collection are seen in special exhibitions throughout the year.

The exhibition gallery of the Museum of Art is open and free to the public six days a week, from September through July. The gallery is closed on Sundays, for University holidays, and in order to install new exhibitions. For more information on hours and exhibitions, call 509-335-1910. Docent tours for groups are available with advance reservation and free of charge. An active Friends of the Museum association supports museum programs through fundraising events, memberships, and volunteer work.

Conner Museum
Abelson Hall, Room 101
509-335-3515
www.sci.wsu.edu/cm

The Charles R. Conner Museum, located on the first floor of Abelson Hall, exhibits fish, amphibians, reptiles, a dinosaur skeleton, and several hundred mounted birds and mammals, including deer, antelope, mountain sheep, mountain goat, moose, caribou, cougar, and small species. The displays are open to the public from 8:00 a.m. to 5:00 p.m. every day except University holidays. Admission is free. School groups are welcome.

The museum also maintains a separate research collection of about 65,000 specimens of birds, mammals, reptiles, and amphibians, including skins, skeletons, specimens preserved in alcohol and formalin, and tissue samples. These collections are used for teaching and research in anatomy, zoarchaeology, systematics, evolution, biogeography, ecology, and conservation, and are loaned throughout the world for research purposes. The collection is located in Abelson Hall, Room 101, and is available to qualified workers.

Culver Memorial, Jacklin, and McCaw Geological Collections
Webster Hall, Room 122
www.sees.wsu.edu/Museums

The Culver Memorial houses the Jacklin Petrified Wood Collection. This spectacular collection contains more than 2,000 cut and polished specimens of petrified wood from all major localities in the western United States. It is the largest display of its kind in the western United States. Included in the collection is a large selection of cut and polished agate, geodes, and dinosaur bone. In a darkroom to the left, the McCaw Collections of 150 beautiful specimens are displayed under different wavelengths of fluorescent light. In the foyer of the first floor of Webster Hall are additional specimens of the Jacklin Collection and the Culver Collection, which includes over 100 classic rock and mineral specimens from localities throughout the world, along with some vertebrate fossils.

All three collections may be viewed Monday through Friday, 8:00 a.m. to 5:00 p.m. Group tours may be arranged by calling the School of Earth and Environmental Sciences office at 509-335-3009.

Drucker Collection
509-335-1233

The Minnie Barstow Drucker Memorial Collection of Oriental Art consists of oriental furniture, accessories, art, textiles, and costumes. The collection was given to the University in 1944 by the late Arthur Eilert Drucker in memory of his wife. The Chinese, Korean, and Japanese artifacts were collected during the years the Druckers made the Orient their home. The collection is currently in storage. Questions about it should be directed to the Department of Apparel, Merchandising, Design, and Textiles.

The Historic Textiles and Costume Collection
509-335-1233

The Historic Textiles and Costume Collection contains approximately 5,000 items of women’s, children’s, and men’s clothing and costume accessories from 1835 to the present, and quilts and woven coverlets. It also contains a number of ethnic textiles and costumes from around the world. The collection is maintained by the Department of Apparel, Merchandising, Design, and Textiles and is primarily in storage pending new facilities with selected items being accessed for classroom examination.

James Entomological Collection
Food Science and Human Nutrition Building, Room 157
509-335-3394
entomology.wsu.edu

One of the largest insect collections in the Pacific Northwest, the Maurice T. James Collection houses over one million insect specimens and an extensive
working library. Adult and immature stages of all insect groups and many related arthropods are represented with particular strengths in the flies, beetles, and butterflies. Primarily of regional significance, the collection also includes considerable material from the New World tropics, eastern North America, and Asia. The collection functions essentially as a research facility by providing specimens on loan to recognized scientists worldwide, by offering identification services to University extension entomologists, and by serving as a repository of type specimens and other materials. Public tours and interpretive presentations for groups can be arranged in advance by phone.

Jewett Observatory and University Planetarium
509-335-1698
astro.wsu.edu
The James Richard Jewett Observatory is the gift of Mr. and Mrs. George F. Jewett of Spokane and is named in honor of Mr. Jewett’s father, a former professor of ancient languages at Harvard University. The observatory houses a 12-inch refractor with a visual lens and a 25-foot revolving dome.

The University Planetarium is located in Sloan Hall, Room 231. Information about open house and group tours of either the observatory or the planetarium can be obtained by contacting the Department of Physics and Astronomy at 509-335-1698.

Mycolological Herbarium
mycology.wsu.edu
The Mycolological Herbarium of Washington State University is maintained by the Department of Plant Pathology, and is housed in the Vogel Plant Biosciences Building, Rooms B6 and B8. The herbarium was founded in 1915 by Frederick D. Heald, the first chairman of the department, and now contains more than 71,000 specimens of fungi. Included are representative materials of all the major groups from the slime molds and true molds to the larger, fleshy mushrooms. The parasitic fungi of northwestern North America have been emphasized; however, through exchange and purchase, representative materials of all groups from all over the world have been incorporated. Loans are freely available to individuals associated with recognized botanical institutions anywhere in the world. Specialists wishing to utilize the facilities of the Mycolological Herbarium and visitors are welcome and are asked to make advance arrangements with the Director, Professor Jack D. Rogers, Department of Plant Pathology, 509-335-9541, so that members of the department may be of maximum assistance to them.

Owneyb Herbarium
Heald Hall, Room 6-9
509-335-3250
www.wsu.edu/~ws/herb
The Marion Owneyb Herbarium is an internationally recognized resource for research, teaching, and service. The herbarium houses about 370,000 preserved plant specimens, primarily from the Pacific Northwest but including worldwide collections. In addition to native vascular plants and weeds, the herbarium contains mosses, liverworts, lichens, and special collections of seeds and cultivated plants. The herbarium is open daily to the public; call 509-335-3250 for hours. Staff provide assistance to persons wanting to identify and learn about plants. Facilities include a small reference library, reprint and slide collections, computers, and special botanical indices. Our Web site includes local plant lists and educational programs.

Smith Soil Monolith Collection
Plant Biosciences Building, Room 43
509-335-3475
The Henry W. Smith Soil Monolith Collection contains more than 150 preserved soil profiles, some as much as eight feet in length, representing soils from all of the geographic regions in the state of Washington and ten of the 12 soil orders in Soil Taxonomy. Soils that are particularly well represented in the collection are those of the Palouse region and those from eastern and central Washington that contain layers of volcanic ash from the many prehistoric and historic eruptions of volcanoes in the Cascade region. The collection is the work of Henry W. Smith, emeritus professor of soils at Washington State University. The soil monoliths constitute a very valuable resource for both teaching and research within the Department of Crop and Soil Sciences. The collection is located in the Plant Biosciences Building, Room 43, and may be viewed any time the building is open. Persons or groups interested in touring the collection should contact Bill Pan at 509-335-3471. Additional information about the Soil Science program can be viewed at www.css.wsu.edu.

Worthman Veterinary Anatomy Teaching Museum
Wegner Hall, Room 270
509-335-5701
The Robert P. Worthman Veterinary Anatomy Teaching Museum features several hundred dried and skeletal preparations of large and small domestic animals. Veterinary students use the labeled, dissected specimens to supplement both basic and advanced anatomical studies. Freeze-dried specimens, demonstrating various surgical approaches used in veterinary medicine, are included in this collection. Additionally, selected specimens of birds and wild species are displayed.

The only one of its kind in the nation, this museum provides a unique learning environment. It is used extensively for teaching classes in anatomy, radiology, and surgery, and it serves as a valuable research tool for faculty, residents, and students.

The collection may be viewed from 8:00 a.m. to 5:00 p.m. Group tours may be arranged by calling 509-335-5701.

Music
Music Office:
Kimbrough Hall, Room 260
509-335-3898
libarts.wsu.edu/music
The School of Music presents a varied program of concerts, recitals, workshops, and master classes each year. These presentations given by faculty, students, and visiting artists are listed in the "Arts on the Palouse" calendar and in a monthly calendar of events which is available on the music Web site at www.libarts.wsu.edu/music or by calling 509-335-8524, the music events line.

The School of Music, in addition to the presentations listed above, supports several performance organizations with enrollment open to all WSU students by audition. Students interested in continuing their musical experience through enrollment in one of the ensembles are encouraged to contact the School of Music.

National Student Exchange
Lighty Building, Room 260
509-335-6000
salc.wsu.edu/NSE
NSE is a program for undergraduate exchange within the United States. Instead of crossing oceans, NSE students cross state, regional and cultural borders. With 182 colleges and universities from which to choose, you are sure to find a location that furthers your academic and personal goals. Contact the Student Advising and Learning Center for more information.

The Ombudsman Office
Wilson Hall, Room 2
509-335-1195
www.wsu.edu/~ombuds
The Ombudsman Office is a neutral and independent resource designated by the University to receive and informally investigate complaints, grievances, and suggestions. The office seeks prompt, equitable, and reasonable solutions to personal and organizational problems and supplements, rather than replaces, other regular University appeal and grievance procedures. Students, faculty, and staff may contact the office for confidential information and assistance from 9 a.m. to 4 p.m. daily while classes are in session.
Student Services and Facilities

Speech and Hearing Clinic

Daggy Hall, Room 133  
509-335-1509  
www.libarts.wsu.edu/speechhearing

The Speech and Hearing Clinic provides complete evaluative and therapeutic treatment to individuals with speech, language, or hearing problems. Included are communication disorders involving articulation of speech sounds, stuttering, voice pitch and quality, and speech and language problems resulting from developmental delays, brain injury, or neuromuscular disability. Individuals with auditory processing disorders, learning disabilities, cochlear implants, and augmentative communication systems may receive special help at the clinic. Speechreading and auditory training, as well as evaluations for fitting of hearing aids and assistive listening devices, are conducted.

Student Advising and Learning Center (SALC)

Lighty Building, Room 260  
509-335-6000, or 888-978-7252  
www.salc.wsu.edu

The Student Advising and Learning Center provides students with responsive and timely services, programs, and academic advising prior to and after enrolling at the University, facilitating their enrollment, retention, academic success, and progress to graduation. Students with questions on academic programs, degree requirements, certification into majors, services available, or students in need of help with study skills or advising should call the Center.

The center faculty and staff are responsible for coordination of:
- Academic advising
- Learning Communities
- The Transfer Center and providing assistance to transfer students
- Assistance with study skills
- Tutoring in a wide range of subjects
- Academic reinstatement
- Washington Achievers Scholars
- National Student Exchange

Students are assigned an advisor by the SALC upon entrance to the University. Students may also be referred to the SALC at any time by faculty members, counselors, and others for any of the services it provides.

Student Recreation Center

Student Recreation Center, Room 250  
509-335-8732 (UREC)  
www.urec.wsu.edu

The Student Recreation Center (SRC) on the Pullman campus of Washington State University is primarily dedicated to serving the full range of indoor and outdoor recreational needs and interests of WSU students during their free time. The center's facilities and programs are designed and administered to deliver this service to all students regardless of physical ability and experience.

Drop-in, open-time recreation is the primary intended use of the SRC, which offers 160,000 square feet of state-of-the-art recreational and fitness equipment, including a pool; spa with cascading waterfall; elevated 1/8-mile track; sport court for indoor soccer and roller hockey; volleyball, basketball, and badminton courts; racquetball/squash courts; free weight and cardio fitness training; indoor lounges with sitting areas, games, and a fireplace; outdoor sundek; and other amenities.

The newest addition to the SRC, the SRC Backyard, is available to fulfill any student's desire to get outdoors and play! The Backyard encompasses three full outdoor basketball courts and four sand volleyball courts, and is lighted so play is open into the evening. The SRC Backyard is located directly behind the SRC, and equipment is available for checkout at no cost to students/members inside the building.

The SRC is also a fully accessible gathering place for students, enriching their social life and enhancing the sense of community and wellness at Washington State University. The Center provides areas throughout the facility where students can socialize whether or not they are engaged in recreational activities, and has recently added wireless internet to aid in student leisure and studying.

Those taking 7 credits or more are automatic members of the SRC through a fee paid with tuition. Students with fewer than 7 credits can purchase memberships online at www.urec.wsu.edu or at the SRC during operating hours.

Student Support Services TRiO Program

Lighty Building, Room 260  
509-335-7324  
www.sssp.wsu.edu

The Student Support Services Program (SSS) at Washington State University is a federally funded college academic assistance TRiO program. The program is designed to provide comprehensive academic support services on a one-to-one basis, developed for a student's personal, academic, and social success. Services include academic advising, college orientation, college success workshops, career/personal counseling, tutoring, mentoring, study skills training, financial aid assistance, technological support, scholarship opportunities, cultural enrichment activities, and referral services.

To be eligible, a student must be a U.S. citizen or permanent resident, be enrolled or accepted for enrollment at WSU, and meet one or more of the following criteria:
- First generation college student (neither parent has received a baccalaureate degree)
- Student is from a limited income family (according to prescribed federal guidelines)
- Student has a documented disability

Students are accepted on a first-come, first-served basis. All services are provided at no cost to participants. Interested students must submit a completed Initial Information Form to the SSS office located in Lighty 260, Student Advising and Learning Center (SALC).

Summer Session

www.summer.wsu.edu

Washington State University conducts a summer session for undergraduate, graduate, and visiting students as an integral part of its year-round operation. Credit earned during summer session is applied toward fulfillment of requirements for baccalaureate and advanced degrees in the same manner and subject to the same rules as credit earned during fall and spring semesters.

During summer session, courses are offered in most University departments to meet the needs of new freshmen and transfer students who wish to get an early start on their degree programs. Courses in a variety of academic areas are offered for continuing undergraduate and graduate students as well as for others qualified to pursue them to advantage. Emphasis is also placed on a program of advanced work for teachers and school administrators.

Shorter sessions, including early session courses varying from one to six weeks, special conferences, and institutes are also features of summer session.

The summer application and course listing is available beginning mid-November on the Summer Session Web page, www.summer.wsu.edu, or contact the Summer Session Office, summer@wsu.edu, to request a brochure.

Theatre, Drama, and Dance

Theatre Office:  
Daggy Hall, Room 320  
509-335-7447  
libarts.wsu.edu/theatre

The Department of Theatre and Dance presents a varied program of plays and dance performances each year. These events are listed in the "Arts on the Palouse" calendar and on the theatre Web site at www.libarts.wsu.edu/theatre.

Theatre presents a widely varied program offering many opportunities for participation in major productions in Daggy Hall theatres as well experimental and student-directed productions. Interested students should contact the Theatre Program for information regarding aspects of the program such as acting, directing, criticism, technical production and dance. Auditions for mainstage productions are open to all members of the University and the community. Participating WSU students are required to be enrolled in Applied Theatre Studies.
Transfer Center
Lighty Building, Room 260
509-335-6000, or 888-978-7252
salc.wsu.edu/transfer

The Transfer Center serves transfer students in a variety of ways:
• Provides incoming transfer students with a clearly identified point of
  contact to begin the transfer process and ensure a smooth transition to
  WSU
• Provides transfer students with responsive and timely programs, services,
  and academic advice prior to and after enrolling that facilitates their
  enrollment, retention, and progress to graduation
• Connects transfer students with academic departments and other
  campus offices and resources
• Provides preliminary academic advising for transfer students seeking
  admission to WSU
• Assists transfer students in developing academic strategies to successfully
  achieve their academic goals

University Writing Center
Center for Undergraduate Education, Room 403
509-335-3628
www.writingprogram.wsu.edu

Throughout their careers at WSU, students may take advantage of the assistance
of writing tutors in the Writing Center, Center for Undergraduate Education,
Room 403, on a walk-in basis, as well as through an online web site.

Graduate and Professional Writing Center – Graduate and pro-
fessional writers of all levels and disciplines may meet with trained writing
consultants to work on writing issues related to theses, dissertations, seminar
papers, publications, and teaching. Appointments can be scheduled online
(linked to writingprogram.wsu.edu), and walk-in consultations are welcome.
Contact: Graduate and Professional Writing Center, CUE 414, 509-335-3413.
Email: gpwc@wsu.edu.

Women’s Resource Center
Wilson Hall, Room 8
509-335-6849
www.women.wsu.edu

The Women’s Resource Center acts as an advocate for diversity by supporting
the perspectives of women in institutional goal setting and programming. The
purpose of the center is to facilitate a supportive and welcoming environment
for women of all races, classes, ages, ethnic origins, and sexual orientations.

The Women’s Resource Center provides specialized programs and services
which address the unique concerns and needs of women. The Women’s Transit
Program is coordinated by the center. Support services for women student
organizations are provided, as well as individual referral services to University
and community agencies.

For additional information, visit our Web site. The Women’s Resource Center
is open from 8:00 a.m. to 5:00 p.m., Monday through Friday.
Research Facilities

Agricultural Research Center
Hulbert Hall, Room 223B
509-335-4563
arc.wsu.edu

The Agricultural Research Center -- the Agricultural Experiment Station of the State of Washington -- was established in 1891 when the university opened its doors as the State Agricultural College, Experiment Station and School of Sciences. The Center provides leadership in discovering and accessing knowledge through high-quality research that contributes to the safe, abundant food and fiber supply; promotes the well-being of individuals, families, and communities; enhances sustainability of agricultural and economic systems; and promotes stewardship of natural resources and ecological systems. Experimentation facilities in Pullman, Puyallup, Prosser, Wenatchee, Mount Vernon, and Lind, supported by additional sites and farms throughout the state, provide coordinated statewide coverage. The Center with over $60 million in annual research expenditures currently oversees research projects in the College of Agricultural, Human, and Natural Resource Sciences and across the university. The nearly 200 faculty members affiliated with the ARC actively involve undergraduate and graduate students in their research programs. Additional information is available at our Web site.

Laboratory for Atmospheric Research
www.lar.wsu.edu

The Laboratory for Atmospheric Research provides a recognized center for atmospheric studies at Washington State University. The laboratory, which is administered through the Department of Civil and Environmental Engineering, provides students with graduate training in the atmospheric sciences. Students are encouraged to participate in the various grant-supported research projects of the laboratory. Since atmospheric research requires an interdisciplinary approach, both the faculty within the laboratory and those who work cooperatively on joint research programs have diverse disciplinary backgrounds. Research areas include those of interest to the citizens and industries of the state, the nation, and the world. Thus, the laboratory is engaged in research aspects of meteorology, atmospheric chemistry, pollution abatement, global climate issues, and effects of atmospheric pollutants. Much of the research involves field measurement programs which have taken the faculty, staff, and students to such diverse places as China, the Antarctic continent, the Caribbean, and the Pacific Ocean as well as numerous sites in the United States. Sampling platforms used include mobile trailers, towers, aircraft, and ships. Analytical technique development in the laboratory and computerized data interpretation, including atmospheric modeling, round out the laboratory research.

Laboratory for Biotechnology and Bioanalysis
Fulmer Hall, Room 537
509-335-1174 or 509-335-8670

The Laboratory for Biotechnology and Bioanalysis (LBB) is a campus-wide research service center that provides a number of important analyses, including DNA and protein sequencing. The goal of the LBB is to provide equipment and expertise for research that utilizes costly and state-of-the-art equipment in the disciplines of biology and chemistry. In LBB-1, equipment and trained personnel are available for DNA array construction and analysis. LBB-2 is primarily set up for analysis of small molecules. Mass spectrometry for biological or synthetic agents is available through LBB-2.

Environmental Research Center
Troy 305
509-335-8338

The Environmental Research Center is an all-University research unit. The center is the focal point for University development of interdisciplinary research on problems related to the environment. It provides an organizational and administrative structure to accommodate interdisciplinary environmental research projects which cut across departmental and college boundaries. The center is closely integrated with the academic Program in Environmental Science and Regional Planning, and students are encouraged to participate in the research projects carried out through it. In order to stimulate an awareness of environmental problems and contributions the University can make in solving them, the center acts as an information source for faculty and students of the University and for citizens of the state. It also assists in securing financial support for research projects involving faculty and students and acts as a liaison unit for inter-university and other cooperative activities dealing with environmental matters.

Francheschi Microscopy and Imaging Center
Abelson Hall, Room 133
509-335-3025

The Francheschi Microscopy and Imaging Center (FMIC) is a research and training facility for the study of biological and non-biological materials. The FMIC provides electron microscopy and light microscopy equipment for observation and analysis of a diverse array of specimens. Students, faculty, and staff can access the FMIC for formal and informal training, and for conducting research through flexible conditions designed to ensure success in acquiring and analyzing specimen images. The center offers courses in electron microscopy for graduate and undergraduate students each semester. The FMIC maintains a TEM, STEM, SEM, confocal microscope, and various light microscopes. Three of the electron microscopes also have EDX analyzers for elemental analysis. All necessary ancillary equipment, computers for image processing and analysis, and three photographic darkrooms are also maintained for student and faculty use. The center provides project consultation and has a skilled staff capable of assisting students and faculty in a wide range of research projects. Faculty and students are welcome to visit the FMIC, located on the ground floor of Science Hall. Inquiries about services and courses offered or class tours of the facilities can be made by calling the FMIC.

GeoAnalytical Laboratory
Webster Hall, Room 1228
509-335-1626
www.wsu.edu/~geolab

The GeoAnalytical Laboratory is a service center within the School of Earth and Environmental Sciences which provides analytical services, primarily for geological research, but also for research in inorganic chemistry and applications in many fields of material and environmental sciences. The laboratory comprises a JOEL 8500F field emission electron probe microanalyzer for quantitative elemental micro-analysis and element mapping; a Siemens X-ray powder diffractometer for phase identification; an automated ThermoElectron ARL X-ray fluorescence spectrometer and HP inductively coupled plasma mass spectrometer (ICP-MS) for major, trace, and rare earth elemental analysis; a Finnigan-MAT gas source mass spectrometer for oxygen, carbon, and hydrogen isotope ratio determinations; a high resolution Thermo-Finnigan ICP-MS for ultra low trace element analysis including in-situ laser ablation sampling; a multicollector Thermo-Finnigan ICP-MS for radiogenic and stable isotope ratios; and a clean room for sample preparation. Most of our services and equipment are available to other departments and other institutions for a reasonable fee.

Information Technology
infotech.wsu.edu

Information Technology Services (ITServices) is a central organization that provides voice, data, and video communications for WSU students, faculty, and staff on the Pullman and urban campuses. These services are a crucial part of WSU’s research and instructional environment. ITServes provides a gigabit data backbone connecting academic, administrative, and residential housing on the Pullman campus. Internet and Internet2 access is achieved over an Oe3 connection on the Washington State K-20 Educational Telecommunications Network. This network also connects WSU’s urban campuses and research centers throughout the state. Continuing efforts include enhancing the capabilities of Washington State University networks through the use of new technologies including wireless access, video conferencing, and increasing network capacity to meet growing demands.
The IMPACT Center
Hulbert Hall, Room 123
509-335-6653
impact.wsu.edu

IMPACT is the acronym for the International Marketing Program for Agricultural Commodities and Trade established in the College of Agricultural, Human, and Natural Resource Sciences in June 1985.

The IMPACT Center funds interdisciplinary research, extension, and teaching to assist the state in exporting its agricultural products. Its major thrusts are in uncovering marketing opportunities, developing strategies to exploit those opportunities, solving economic and technical impediments to current agricultural exports, and finding alternative products or processes.

The IMPACT Center receives its funding from state, federal, and private sources. Its programs are closely integrated with those of the Department of Agriculture and of WSU’s College of Agricultural, Human, and Natural Resource Sciences. In carrying out its mission, the IMPACT Center funds faculty and staff for both long- and short-term assignments. Personnel are housed in the appropriate academic department or outlying station. While the IMPACT Center gives assistance to departments in providing graduate-level courses in international agricultural marketing, it does not offer graduate programs.

Nuclear Radiation Center
509-335-8641
www.wsu.edu/~nrcc

The Nuclear Radiation Center (NRC) is an education, research, and service facility supporting the entire University. The center has a one-megawatt TRIGA reactor, a cobalt-60 irradiation unit, and numerous state-of-the-art radiation detectors and counting systems.

The center supports undergraduate and graduate education with both facilities and instruction. Graduate students in engineering, physics, chemistry, geology, anthropology, food science, animal science, veterinary science, and other fields may conduct their thesis research at the NRC. Trace element analysis using neutron activation analysis (NAA) is routinely available at the center. This technique is applicable to analytical chemistry, geology, material science, biomedical research, environmental science, physics, and other areas. Consultation is available to investigators with elemental analysis needs.

Radiation detection and analysis is practical for many radionuclides. Gamma ray spectroscopy using HPGe, LEP, or NaI(Tl) detector systems, and isotopic identification are available. Liquid scintillation and alpha-beta counting equipment is available as well.

Neutron irradiation service is provided by the NRC’s one-megawatt fission reactor. The reactor also supports other research projects. Gamma irradiation services are offered on the cobalt-60 unit.

The NRC provides laboratory space for radiochemistry researchers and other projects and programs. A wide range of services and capabilities make the Nuclear Radiation Center ideally suited to support elemental analysis or radiation-related studies at Washington State University. Tours of the reactor facility can be arranged by calling 509-335-8641.

Social and Economic Sciences Research Center (SESRC)
Wilson Hall, Room 133
509-335-1511
www.sesrc.wsu.edu

The Social and Economic Sciences Research Center (SESRC) provides high quality social, economic, and behavioral science research services to the students, faculty, and administration at WSU, and the citizens and agencies of the state. The SESRC has three main goals: (1) to conduct research in the social, behavioral, and economic sciences that is responsive to the needs and concerns of the state, region, and local communities; (2) to provide telephone, mail, internet, and face-to-face survey capabilities to University faculty, staff, students, and others for conducting research; and (3) to provide research training for both undergraduate and graduate students at WSU.

The SESRC research facilities include a networked telephone interviewing laboratory of 60 computers with modems, interview stations with telephone headsets, computer assisted telephone interview (CATI) software, and printers, scanners, and other mail questionnaire and data entry processing equipment. This facility is located at the WSU Research Park and is staffed by over 150 student and non-student interviewers, several supervisors, research managers, and programmers. Another 20 interview stations are located in Wilson Hall and are used for cognitive interviewing, development of Internet questionnaires, and other research activities.

The SESRC professional staff provide assistance in all phases of survey research, and have experience and capabilities for conducting telephone, mail, e-mail, Internet, and face-to-face interview surveys, focus groups, data entry of paper questionnaires, statistical analysis of survey data, and preparation of research proposals and project reports. Faculty and students from WSU’s social, behavioral, economic, and educational disciplines participate in SESRC projects. Collaboration with other research centers and departments at WSU lends a strong interdisciplinary emphasis to the work of the SESRC.

State of Washington Water Research Center
Albrook Lab, Room 202B
509-335-5531
www.swwrc.wsu.edu

Federal legislation establishing the State of Washington Water Research Center, along with the 53 other water research centers and institutes throughout the United States and territories, outlines three major directives:
1) Support of research in multi-disciplinary and interdisciplinary water-related studies
2) Assistance in the education and training of undergraduate and graduate students toward degrees in water-related professions through active participation in research projects
3) Dissemination of results of research and other current information on water-related issues through the distribution of technical and popular publications and through the sponsorship of conferences, seminars, workshops, and other outreach activities

The State of Washington Water Research Center was established in 1964 as a joint agency of Washington State University and the University of Washington with the directorate located in Pullman, at the land-grant University. Programs and policies of the center are determined by the director with the assistance of program directors and the Joint Scientific Committee, composed of faculty members from the state's universities and representatives from state and federal agencies. Washington State University, the University of Washington, The Evergreen State College, and the three regional universities have all participated in the center's program through specific research projects, making the center a truly statewide activity.

The center has fostered extensive research on Washington's water-related problems. Much of this research is also of regional and/or national significance. To date, over 450 projects have been funded through the center and completed with technical reports and journal articles distributed to the professional community and appropriate agencies. Over 1,000 undergraduate and graduate students have been assisted in meeting their educational goals through their work on these projects to become the water scientists and engineers of today and tomorrow.

The research projects in the center, supported by the federal cooperative program and other grants, may be basic or applied in nature, depending upon the interests of the sponsor. The center does not maintain a regular scientific or engineering staff, but instead coordinates team activities and provides funds to individual investigators through departments and research units of the state's universities.

Further information regarding the program may be obtained by writing the Director, State of Washington Water Research Center, Washington State University, PO Box 643002, Pullman, WA 99164-3002, or by calling 509-335-5531.

WSU Center for NMR Spectroscopy
Fulmer Hall, Room B3
509-335-3005
nmr.chem.wsu.edu

The WSU Center for NMR Spectroscopy is a central University facility that provides access to state-of-the-art NMR instrumentation. It is administered by the College of Sciences and its equipment has been funded by grants from the National Institutes of Health, the National Science Foundation, the Battelle Memorial Institute, and the Murdock Charitable Trust.

The facility is open for users from across the WSU campuses and from outside institutions. The center currently houses four NMR spectrometers, a Varian Mercury 300 MHz spectrometer for routine chemical analysis, a Varian
Inova 500 MHz spectrometer for more complex and demanding projects, a Bruker Avance DRX 400 MHz spectrometer for work on solid state samples, and a Varian NMR Systems 600 MHz spectrometer for biomolecular work and for mass limited samples. The Varian 500 and 600 MHz spectrometers both have four radio frequency channels and pulsed field gradients and are equipped with a variety of probes for analysis of sample types ranging from inorganic complexes to proteins and nucleic acids. The 500 MHz spectrometer is also fitted with XYZ axis field gradients which enable micro-imaging capabilities of samples less than 5mm in diameter and magic angle PFG experiments. The 400 MHz spectrometer is also fitted with four radio frequency channels and has a variety of probes capable of handling double, triple, and quadruple resonance experiments.

The Center is managed by a Ph.D.-level facility manager whose specialist knowledge is in liquids NMR and by an assistant manager whose specialist knowledge is in solids NMR. Electronics support is provided by the College of Sciences Technical Services. The center also has several Silicon Graphics, Sun, and Linux workstations for off-line data analysis.
General Information
Admission to Washington State University is granted without regard to age, sex, race, religion, color, creed, handicap, national or ethnic origin, or marital status. Admission to the University is granted to eligible applicants prior to registration but not after census day for each semester.

The following information relates to admission of new students only. It is not applicable to students previously enrolled in Washington State University during the regular school year.

It is the policy of Washington State University to admit all applicants if the total evidence (e.g., academic records, test results, recommendations, and interviews) indicates a reasonable probability of success. The total number of new students admitted for any one semester or in any specific department or program will be based on the number of students for whom facilities can be made available.

Applications are available at www.apply.wsu.edu or from the Office of Admissions, PO Box 641067, Pullman, WA 99164-1067.

Any freshman applicant planning to compete in intercollegiate athletics must submit scores on the College Board SAT to meet National Collegiate Athletic Association (NCAA) regulations.

The University reserves a limited number of spaces in the incoming class for students with exceptional talent or potential, as determined by the departmental/college representative making the recommendation. Departmental representatives should contact the Director of Admissions for information.

Students who fail to meet the published admission requirements may contact the Office of Admissions for further information. Exceptions to the admission requirements may be made only by the Faculty Admissions Subcommittee.

Retention of Students
The grade point average for freshmen entering from high school in the fall semester 2006 was 3.45. Of the 2,699 freshmen who entered in the fall 2006, 2,513 were enrolled in the spring of 2007.

Freshman Admission Requirements
Freshman applicants will be considered for admission on the basis of their academic records, which include transcripts, test scores (SAT or ACT), a personal statement, and other relevant materials as requested. Beginning with the freshman applicants for fall 2006, the writing component for either the SAT or ACT will be required for those students graduating from high school after August 2005. The high school transcript must show completion of no less than the following course work in grades 9-12:

English:
Four years (three of which must be composition and literature).

Mathematics:
Three years college preparatory mathematics (one year of geometry and two years of algebra, including an introductory component of trigonometry). Additional mathematics is strongly recommended.

Science:
Two years (including at least one year of laboratory science: biology, chemistry, physics, or Principles of Technology). Note: Students applying for college freshman admission, beginning in fall 2010, will need to complete two years of laboratory science, including one year of algebra-based biology, chemistry or physics.

Social Science:
Three years (including at least one year of history).

Foreign Language:
Two years of the same foreign language, Native American language, or American Sign language.

Fine Arts:
One year of fine, visual, or performing arts, or one additional year of academic elective.

It is strongly recommended for students planning to major in science or science-related fields to complete at least three years of science (including at least two years of laboratory science).

Applicants who have not graduated from high school at the time of application must maintain a satisfactory record, complete all required courses specified for admission to WSU, and provide evidence of graduation, higher credential such as an Associate of Arts or Associate of Science degree, or completion of the GED prior to enrollment.

Freshman applicants over 25 years of age should contact the Office of Admissions concerning requirements.

Graduates of unaccredited high schools should write to the Director of Admissions for further information.

Applicants must apply with a full and complete application packet by January 31 for priority consideration for the fall semester, as space is limited. Applicants for spring semester should apply by October 1 for priority consideration.

A complete application includes the application form, the official high school transcript provided in a sealed envelope, the SAT or ACT score report from the testing agency, the personal statement, and the nonrefundable application fee. Students may apply online at www.apply.wsu.edu.

Factors considered in freshman admission include grade point average, standardized test scores, the strength of the high school course work (including senior year course work), grades the student has earned and any improvements they have made in their academic performance, and their personal statement. Although letters of recommendation are not required, they are taken into consideration if they are helpful in speaking to the student's academic potential and abilities. Refer to the website for additional information.

Students who have applied to the University may apply to WSU's Honors College if they have shown unusual scholastic ability and intellectual achievement in high school. Application materials may be obtained from the Honors College website at honors.wsu.edu. Transfer and international students may apply to the Honors College on an individual basis after eligibility has been determined. Questions should be directed to the University Honors College, PO Box 642012, Pullman, WA 99164-2012, or call 509-335-4505.

Transfer Admission Requirements
Transfer applicants who have successfully completed a Direct Transfer Associate (DTA) from a regionally accredited post-secondary institution at the time of application will be admitted as space allows. Transfer applicants without a DTA but with at least 27 semester (40 quarter) hours of transferable college credit from a regionally accredited post-secondary institution normally will be admitted as space allows, provided they have at least a 2.5 cumulative grade point average. Transfer students with a 2.0-2.49 cumulative grade point average will be admitted as space allows. Applicants with fewer than 27 semester (40 quarter) hours of transferable credit will be considered for admission if they also meet the freshman admission requirements.

For fall semester, qualified students who apply with a complete application packet by January 31 will be offered admission until the class is filled. For spring semester, qualified students who apply by October 1 will be offered admission on a space available basis until the class is filled.

A complete application includes the application form, an official transcript sent directly from each college or university attended showing work completed at the time of application, and the nonrefundable application fee. Applicants with fewer than 27 semester (40 quarter) hours of transferable credit earned and posted at the time of application must also provide evidence of meeting the freshman requirements by the priority date for consideration.

Transfer Credit Policy
College-level work completed at institutions that are regionally accredited is given appropriate credit upon transfer to Washington State University.

The maximum transfer credit allowed from accredited two-year community or junior colleges, or from CLEP, AP, IB, or military credit shall be 73 semester (110 quarter) hours toward a baccalaureate degree irrespective of when those credits were earned. The maximum allowable credit toward a four-year degree from a four-year institution or from a combination of all institutions shall be 90 semester (135 quarter) hours of credit, of which no more than 73 semester credits may be lower division hours of credit. For a five-year degree program the maximum credit allowed for transfer from a four-year institution or a combination of all institutions shall be 120 semester (180 quarter) hours of credit.
Students wishing to gain early admission (prior to graduation from high school) to Washington State University need to submit the following for consideration:

1. A written statement giving the reason(s) early admission is being requested;
2. An official transcript showing all high school work completed to date. A minimum grade point average of 3.85 is required. If the student has taken the G.E.D. prior to the expected date of high school graduation, a minimum score of 62 is required. Official high school transcripts showing completed work must also be submitted. Applicants must meet the minimum requirements for High School Core as required by Washington State University;
3. Official results from the Scholastic Achievement Test (SAT) or the American College Test (ACT). Minimum of 1250 SAT (Critical Reading and Mathematics) or comparable ACT score is required.
4. At least two letters of recommendation, one from the principal or guidance counselor, and one from a teacher who knows the student’s academic capabilities. These letters should give specific reasons why the student would benefit more from attending WSU, rather than completing high school;
5. A letter of recommendation from the student’s parent or guardian supporting his or her application for early admission; and
6. Completion of WSU application and payment of application fee.

Washington State University wishes to make educational opportunities available to students whose extraordinary talents have the potential to enrich our intellectual, cultural, and social environments, but whose overall academic credentials may not qualify them for regular admission.

WSU departments, colleges, or programs may request special consideration for students who possess such extraordinary talents provided the talent is of a nature that would not normally be reflected or assessed during the regular admission process. The current admission process considers the curriculum, grades, and standardized scores of the applicant. Examples of evidence of extraordinary talents that might not be apparent in the applicant’s file include: exceptional music or theatrical performance, athletic accomplishment, awards in science, math, or artistic competitions or similar measures of talent.

There are two tracks for admission under this policy. The first admits students who are minimally qualified with an AIN of 28 or above, but whose index scores do not meet the criteria set by the university for admission that year. Such students may be admitted upon the written recommendation of the chair/director of the relevant academic department, school, or program or the head coach of the relevant athletic team and the approval of the Associate Vice President/Associate Vice Provost for Enrollment Services or designee. In the case of student athletes, the concurrence of the Faculty Athletic Representative is also required. Letters of recommendation must detail how the student’s skills will contribute to the University.

Washington State University recognizes academic credits earned at other collegiate institutions which are essentially equivalent in academic level and content to work offered at WSU. Toward this end, the University subscribes to the “Policy on Inter-College Transfer and Articulation Among Washington Public Colleges and Universities” endorsed by the public colleges and universities of Washington and the State Board for Community and Technical Colleges and published by the Higher Education Coordinating Board. The policy deals with the rights and responsibilities of students and the review and appeal process in transfer credit disputes.

Admission of Students with Extraordinary Talents

Washington State University recognizes that students who have completed a Direct Transfer Associate (DTA) degree at a Washington community college, including a course pattern which approximates the General Education Requirements (GERs) for graduation from Washington State University, as determined by the Office of Admissions at Washington State University, will be considered to have fulfilled the lower-division General Education Requirements for graduation. The Associate of Arts-Oregon transfer degree from an Oregon community college guarantees completion of the lower-division General Education Requirements, but does not guarantee junior standing. Certain approved Associate’s degrees from Arizona, California, Hawaii, and Idaho may also be considered to have fulfilled the lower division GERs for graduation, but do not guarantee junior status (60 semester credits). For details on specific degrees consult the Office of Admissions. In all cases, students will also be required to meet the upper-division General Education Requirements as well as any departmental and college graduation requirements.

Students who have completed the Associate of Science Transfer Degree (A.S.T.) from a Washington community college will receive the same priority consideration for admission to the baccalaureate institution as they would for completing the direct transfer associate degree and will be given junior status. Additional general education and college graduation requirements, as required by Washington State University, must be met prior to the completion of a baccalaureate degree. Students are responsible for checking specific major requirements in the year prior to transferring.

Washington State University recognizes academic credits earned at other collegiate institutions which are essentially equivalent in academic level and content to work offered at WSU. Toward this end, the University subscribes to the “Policy on Inter-College Transfer and Articulation Among Washington Public Colleges and Universities” endorsed by the public colleges and universities of Washington and the State Board for Community and Technical Colleges and published by the Higher Education Coordinating Board. The policy deals with the rights and responsibilities of students and the review and appeal process in transfer credit disputes.

Students who have completed at least 70 quarter credit hours toward completion of an approved A.A. degree may complete the Direct Transfer Associate (A.A.) degrees from a Washington or Oregon two-year college after their initial enrollment at WSU.

Transfer students are encouraged to contact the Office of Admissions at 888-468-6978 or 509-335-5586 with any questions regarding the transfer of credit or to access transfer articulation information at www.wsu.edu/advise/transfer-courses or www.wsu.edu/transfer/TRACS, or to call the Transfer Center at 509-335-5171.

Admission to WSU Spokane, WSU Tri-Cities, and WSU Vancouver

The WSU Spokane, Tri-Cities, and Vancouver campuses offer a variety of undergraduate and graduate degree programs. All three campuses have graduate education; WSU Tri-Cities and WSU Vancouver also offer baccalaureate degrees.

Academic programs offered by each campus are listed separately in this catalog. Applications may be obtained from each campus or at its Web site. A complete transfer application includes the application form, official transcripts provided in a sealed envelope from each college or university attended.
showing work completed at the time of application, and the nonrefundable application fee. A complete freshman application for WSU Vancouver includes the application form, official high school transcript(s), SAT or ACT score, WSU Vancouver Personal Statement, and the nonrefundable application fee. Applications will not be considered or processed after the tenth day of classes for any semester. Final and complete transcripts to date must be submitted prior to the student's initial enrollment.

The policies regarding the transfer of credit are described within the Transfer Admission Requirements as explained above.

**Former Students Returning (FSR) Not Enrolled the Previous Academic Semester**

futurestudents.wsu.edu/admission

Students formerly enrolled at Washington State University who have been absent for only one semester (excluding summer sessions) may enroll without reapplying for admission.

Students absent for more than one semester are required to submit an FSR Application prior to enrollment. Preference will be given to applications received by January 31 for fall semester and October 1 for spring semester. Applications submitted after census day of classes will not be considered.

FSR applicants will be granted admission if they are in good academic standing. FSR applicants whose previous academic record at Washington State University is unsatisfactory will be required to follow established academic reinstatement procedures prior to admission.

FSR applicants who have attended other institutions since their last enrollment at Washington State University are required to submit an official transcript directly from each institution attended. Applicants are required to have at least a 2.0 GPA in transfer work.

Apply at www.apply.wsu.edu or contact the Office of Admissions for a FSR application.

**International Student Admission Requirements**

futurestudents.wsu.edu/admission

Washington State University encourages the application of qualified students from other nations to complement its student community. Applicants must submit evidence of English proficiency (example: TOEFL or other recognized proficiency exam; see www.ip.wsu.edu/enroll/faq for list), evidence of adequate financial resources to meet the costs of the proposed study, an International Undergraduate Application for Admission along with application fee, and secondary and post-secondary transcripts of all completed course work. Please contact the Office of Admissions at 509-335-5586 or at futurestudents.wsu.edu/admission for further information.

**Non-Degree Admission**

futurestudents.wsu.edu/admission

Individuals may enroll at Washington State University as non-degree students for personal enrichment, professional development, or other reasons. Enrollment in courses for non-degree students is limited to space available, and non-degree students register for courses after degree-seeking students. Students who are interested in applying as a non-degree-seeking student may apply at www.apply.wsu.edu.

**International Student Non-Degree Admission Requirements**

futurestudents.wsu.edu/admission

International non-degree students come to Washington State University for a variety of reasons, as do domestic non-degree students. However, often these students are having a study abroad experience at WSU, much like WSU students have when they go overseas to study for a short while at foreign institutions. The goals for the experience usually include improving language capabilities, taking transferable credit-bearing course work, making new friends, learning about American culture, and seeing a little of the USA. Conversely, these students enrich WSU by exposing students and faculty alike to a broader world view in and outside of the classroom.

Most of the students return to their home institutions to complete degrees after they attend classes at WSU. Since the purpose for the non-degree status is not for the student to ultimately attain a degree from WSU, the period of study is usually expected to be one year or less. However, non-degree students have been known to return to WSU for post-baccalaureate or graduate study after learning about the fine facilities, high-quality faculty, and many resources we have to offer.

**Whitman County High School Students Enrolling at Washington State University**

For fall and spring semesters, eligible local Whitman County high school students enroll through Running Start. For more information on the Running Start program, please contact the Registrar's Office at 509-335-5583.

**Limited Enrollment Programs**

Since academic departments may establish additional requirements for admission or certification to specific programs, eligibility for admission to Washington State University does not ensure acceptance into any department or program as a certified major and degree candidate. Several academic programs, including but not necessarily limited to architecture, business administration, communication, computer science, construction management, economics, education, engineering, fine arts, hospitality business management, interior design, landscape architecture, mathematics, music, nursing, psychology, pharmacy, and veterinary medicine, are unable to accept all interested students. In these situations, and others which may arise in the future, the most highly qualified students will be selected up to the enrollment limits in the specific programs. Students applying for admission to selective programs should contact the Office of Admissions regarding special requirements and application deadlines. For instance, applicants for veterinary medicine must apply by October 1; pharmacy, by February 1; and nursing, by February 15 for fall and September 15 for spring. Deadlines are subject to change.

**Credit by Examination**

Recognizing the natural ability and education experience of many of its applicants, Washington State University has developed a broad program of credit by examination.

In consultation with academic departments, credit may be granted to entering or enrolled undergraduate students via external examinations, institutional examinations, and approved military service schools. WSU does not accept credit by exam granted by other institutions. Credit by examination shall yield no grade points. Such credits may partially fulfill General Education Requirements for graduation. External examinations include but not limited to: Advanced Placement (AP) examinations; general and subject College Level Examination Program (CLEP); and International Baccalaureate (IB). Acceptable scores for receiving credit may be found at www.wsu.edu/credit.

Credit by examination.

The maximum combined lower-division transfer credit allowed from regionally accredited institutions, AP, CLEP, IB and military credit shall be 73 semester hours toward a baccalaureate degree irrespective of when those hours were earned.

Matriculated students who are currently registered may take a special examination for university credit in a course in which they are not registered. Such credits yield no grade points but may yield credit toward completion of General Education Requirements for graduation. For further information contact the Registrar's Office.

**Advance Payment on Tuition and Fees**

All undergraduate applicants, except former students returning, special students, contract students, and foreign students living outside the USA (except Canada), are required to submit a nonrefundable advance payment on tuition and fees in the amount of $200 prior to final admission. The advance payment will be requested of those applicants who are eligible for admission and should not be submitted until notice of eligibility is received by the applicant.

**Graduate Admission Requirements**

Applicants for admission to the Graduate School must meet the special requirements of the Graduate School and the particular program desired. For complete information, refer to the Graduate School listing in this catalog.
Financial Aid

Estimated 2008-2009 Undergraduate Expenses, Pullman Campus

<table>
<thead>
<tr>
<th>Direct Costs</th>
<th>Resident</th>
<th>Nonresident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition/Required Fees</td>
<td>$7,554</td>
<td>$18,590</td>
</tr>
<tr>
<td>Room and Board</td>
<td>8,482</td>
<td>8,482</td>
</tr>
</tbody>
</table>

Indirect Costs

| Books                 | 936      | 936         |
| Transportation and Miscellaneous | 3,542    | 3,542       |
| Totals                | $20,514  | $31,550     |

For expenses at other campuses, please see www.finaid.wsu.edu/colcosts2008_2009.htm#trad.

Note: The above costs are subject to change by the Board of Regents or through state legislative actions.

Other Costs

Summer New Student Orientation Program Matriculation Fee: $215
Security deposit required of those living in residence halls: $150
Parking: Contact Parking Services for current rates.

Tuition and fees are due the first day of each term. Incoming students receive information about registration and orientation activities prior to coming to campus.

Note: Your registration for courses at Washington State University constitutes a legal obligation to pay tuition and fees, subject to the University’s Refund Policy if you officially withdraw. You will be charged a $30.00 processing fee for any dishonored check drawn by you or others for your account.

Student Financial Assistance/Scholarships

Office of Student Financial Aid
Lighty Building, Room 380
509-335-9711
www.finaid.wsu.edu

Office of Scholarship Services
Lighty Building, Room 380
509-335-1059
www.finaid.wsu.edu/scholar

Federal assistance programs include Perkins Loans, subsidized and unsubsidized Stafford Loans, Graduate PLUS Loans, and Parent PLUS Loans through the Federal Family Education Loan Program (FFELP); Pell Grants, Supplemental Educational Opportunity Grants; Federal College Work-Study employment; and Health Professions and Nursing Loans. State-sponsored programs include Tuition and Fee Waivers, State Work-Study Employment, and State Need Grants. University sources of aid include scholarships and institutional grants.

Students wishing to apply for any of the above aid programs at WSU must submit the Free Application for Federal Student Aid (FAFSA). These applications are available from all colleges and universities, public high schools, public libraries, and on the Web at www.fafsa.ed.gov. Be sure to list WSU as a school to receive your data. Our Federal School Code is 003800. Your application must be received by the Federal Processing Center by March 1 to receive priority processing. If you complete the application online, you must sign using the PIN issued by the Department of Education for your application to be processed fully. Please allow 7-10 days for mail time for either the signature page or the paper FAFSA. If you miss the priority deadline, we still encourage you to apply as soon as possible. After the March 1 deadline, processing and awarding is done on a date-received basis. Loans are available to all students regardless of income. Questions should be directed to the Office of Student Financial Aid.

A wide variety of scholarships are available to new and continuing students. These opportunities are available through the University-wide application, the student’s academic college or department, and through outside scholarship donors. Application requirements and due dates vary; therefore, questions should be directed to the Office of Scholarship Services.

Academic Progress: For financial aid purposes, full-time enrollment for an undergraduate student is 12 credit hours and part-time enrollment is considered to be 6-11 credit hours. For graduate students, full-time enrollment is 10 credit hours and part-time enrollment is considered to be 5-9 credit hours. Certain financial aid programs, such as State Need Grant, State Work-Study, and Tuition and Fee Waivers require a student to be enrolled full-time. In order to maintain financial aid eligibility, students must meet Satisfactory Academic Progress (SAP) requirements for credit hour completion and grade point average (GPA). The complete SAP policy is available at www.finaid.wsu.edu/sap.htm.

Loan Deferrals: Deferrals on Perkins Loans and Federal Family Education Loans require at least half-time enrollment. Five credit hours constitute half-time enrollment for a graduate student. Undergraduate students need to have at least 6 credit hours of enrollment.

Federal Veterans Benefits

French Administration Building, Room 346
509-335-1234; 509-335-1857
www.va.wsu.edu

The Veterans Affairs Office cooperates with the Veterans Administration in carrying out the provisions of the public laws established to give educational benefits to veterans and qualifying dependents of veterans whose death or permanent and total disability is service-connected. Students should apply for admission to the University and for their VA benefits simultaneously. Application for benefits should be made to the Veterans Administration at www.gibill.va.gov. Provide a copy of the application for benefits to the WSU Veterans Affairs Office. The Veterans Administration processing time between receipt and approval of the application is approximately one month. Once approved, the first benefit check will arrive the first month after the start of the semester.

Students Receiving Benefits

Students receiving benefits may be eligible for tutorial assistance or for veterans work study. Information and application forms for all veterans programs may be obtained from the Veterans Affairs Office, French Administration Building, Room 346, Pullman, WA, 99164-1035, 509-335-1234 or 509-335-1857.

Veteran Students Called to Active Duty

Students activated or about to be activated for military duty need to contact the Veterans Affairs Office as soon as they receive notice of mobilization. If possible, please have a copy of your orders or a letter from the unit Commanding Officer available when contacting the office. Information is available in the WSU Veterans Affairs Office, 509-335-1234, 509-335-1857. Veterans who served in combat operations or in support of combat operations may be eligible for a partial tuition waiver. To apply visit www.va.wsu.edu or contact the WSU Veterans Affairs Office, French Administration Building Room 346, Pullman, WA, 99164-1035 509-335-1234 or 509-335-1857.

Partial Waiver of Tuition for Veterans

Veterans who served in combat operations or in support of combat operations may be eligible for a partial tuition waiver. To apply visit www.va.wsu.edu or contact the WSU Veterans Affairs Office, French Administration Building Room 346, Pullman, WA, 99164-1035 509-335-1234 or 509-335-1857.

Full Waiver of Tuition for Dependent Students of Deceased, Totally Disabled, MIA or POW Veterans

A child or surviving spouse of an eligible veteran or National Guard member who lost his or her life or became totally disabled while engaged in active federal military or naval service, or who is determined to be the federal government to be a prisoner of war or missing in action may be eligible for a full tuition waiver. To apply visit www.va.wsu.edu or contact the WSU Veterans Affairs Office, French Administration Building Room 346, Pullman, WA, 99164-1035 509-335-1234 or 509-335-1857.

Partial Waiver of Fees for Children of Deceased or Totally Disabled Law Enforcement Officers and Firefighters

Students a child of a law enforcement officer or firefighter who lost his/her life or became totally disabled in the line of duty while employed by a any public
WSU Tuition Fee Waiver Program

A fee waiver option is available for eligible individuals who wish to enroll for up to 6 credits for fall or spring semesters or 4 credits for summer. Individuals enrolling for more than the credit hour limits are not eligible for this program. This program is based on availability of space and facilities.

Eligible Individuals (some restrictions apply)

**WSU Employees**

- Civil Service employees holding half-time or greater appointments and having permanent status by the 10th day of classes (fall and spring semesters) or the 1st day of class for the summer sessions
- Civil Service employees on trial service appointments meeting the above criteria
- Faculty and Administrative Professional employees holding half-time or greater appointments
- Employees covered by collective bargaining unit agreements are eligible on the same basis as Civil Service employees unless otherwise defined by the terms of the applicable bargaining unit contracts.

**Others:**

- Employees of other state of Washington agencies or higher education institutions meeting the WSU employee eligibility requirements are eligible for benefit for fall and spring semesters ONLY
- USDA/ARS and ROTC faculty and staff employed at WSU locations who meet WSU employee eligibility requirements above are eligible on a space available basis
- Washington National Guard active members are eligible for the benefit for fall and spring semesters ONLY

Individuals Must be Admitted to WSU

Qualified individuals who wish to enroll under this program must follow regular admission procedures and present a completed staff/faculty registration authorization form beginning the first day of classes to the Registrar’s Office (or Summer Session Office if for summer). Forms and instructions are available online at www.ronet.wsu.edu under RO Publications or at www.summer.wsu.edu under Faculty and Staff for summer session. Complete information on this fee waiver program can be found in the WSU Business Policies and Procedures Manual online at www.wsu.edu/~forms/PDF/BPPM/60-00.pdf. (Fall and Spring: 60.70 & Summer: 60.73).

**Fees**

WSU charges each eligible individual a nonrefundable $5 administrative fee plus any special course and laboratory fees as well as any applicable late registration fees and late fee payment charges.

**Other Restrictions**

Individualized instruction such as independent study, distance degree and extended degree program courses, thesis, dissertation, research, internships, tutorials, self-sustaining courses (fall and spring semesters), private lessons, or practicums may not be taken under the fee waivers.

**Audit Enrollments**

Auditing under the fee waiver is limited to two courses per semester. Laboratory courses may not be audited. The instructor’s signature is required for auditing and cannot be obtained prior to the first day of classes. For fall and spring semesters, applicants wishing to audit should report to the Registrar’s Office during the first week of classes to obtain the Permission to Audit form.

Applicants wishing to use the fee waivers to audit summer courses should first check with the Summer Session Office to see if they qualify, as special conditions apply. Fee waiver students will be admitted to class on a space-available basis and are responsible for paying a $5 nonrefundable registration fee, plus any special course fees or other fees as appropriate.

**Waiver of Fees for Persons Age 60 and Over**

Persons age 60 or over who are residents of the state of Washington may enroll in up to six audit hours per semester for fall and spring only, using a tuition fee waiver obtained at the Registrar’s Office. See Audit Enrollment information above for Fee Waiver Program.
Housing

Housing Services
Streit-Perham Administrative Office
509-335-7789
www.livingat.wsu.edu

Over twenty residence halls, including co-educational, single-sex and age-restricted halls, provide space for 4,500 students at the University. Additionally, 2,200 students reside in Greek chapter houses. Many of these living communities focus around particular academic, social, or international issues. These include Scholars and Honors Halls, a Wellness Hall, and a Math, Science, and Engineering Hall, as well as an International House and halls designed specifically for the success of new students. Twenty-three fraternities and 15 sororities currently maintain chapters ranging in size from 40 to 110 people. Most sororities and fraternities maintain chapter houses. Facilities for physically challenged students are also provided.

Students living in residence halls, fraternities, and sororities elect their own officers, and each community affords many opportunities for leadership experience. The Residence Hall Association acts on behalf of the residence halls and coordinates University-wide hall programming. Panhellenic and Interfraternity Council are the governing bodies for the Greek system and work together to promote scholarship and other programming activities. Residence hall information may be obtained online at www.livingat.wsu.edu.

Housing Regulations
All single undergraduate freshmen under 20 years of age are required to live in organized living groups which are officially recognized by the University (residence halls, fraternities, and sororities) unless they are residing with parents or legal guardians. Exemptions are granted when students demonstrate to Student Affairs that (1) they have attended an institution of higher education as regularly enrolled students for at least two regular semesters or three regular quarters (30 semester hours), (2) they are living with immediate family in a family situation (mother and/or father, legal guardian, aunt or uncle, and grandparents qualify as immediate family), (3) they have secured a statement from a physician that residence in a living group would have detrimental effects on the student’s physical health or emotional well-being, (4) they would experience undue financial hardship.

Residence Halls and Dining Facilities
Washington State University can normally provide space in its residence halls for most beginning students who request it. The estimated cost of room and board per person for double occupancy with a level-two dining account for the next academic year can be found at www.livingat.wsu.edu/calculator/reshallrates. A $400 first payment, along with a $150 security deposit, is required at the time of application, unless the applicant is receiving more than $7,000 in financial aid.

A student desiring to cancel an advance room reservation and receive a refund of the first payment must notify Housing Reservations for Residence Halls, Streit-Perham Administrative Office, prior to July 15. Once the applicant has been assigned to a hall, the security deposit is held to ensure occupancy of the space and then to guarantee against damage, breakage, and loss during the student's stay in the hall. The deposit is held until the individual permanently leaves the residence hall system.

Students residing in all but three of the residence halls purchase the Residence Dining Account for use in residence hall dining facilities. The dining facilities are managed by trained food service personnel and are operated on a nonprofit basis.

The Board of Regents establishes rules for the use of residence halls and other University housing. The University reserves the right to use the unassigned beds in any of the residence halls at any time.

Washington State University is not liable for the loss of money or valuables by any person, or for the loss of or damage to any resident’s property, or personal injury sustained on the premises. It is urged that appropriate insurance be obtained prior to hall occupancy.

Family/Graduate Student Housing
The University operates over 300 apartments that are available to unmarried students desiring apartment-type living. Sophomores and above are eligible for this type of housing. Units are two-, three-, and four-bedroom and are completely furnished except for linen, kitchen utensils, cleaning equipment, and study lamps. Assignments are made from a waiting list based on the date a completed group application is received. Information and applications may be requested by calling Housing Reservations at 509-335-4577. Written requests may be mailed to: Housing Reservations, WSU Housing Services, PO Box 641726, Pullman, WA 99164-1726.

Single Student Apartments
The University maintains over 600 unfurnished apartments (one-, two-, and three-bedroom) for families and 40 furnished studio apartments for unmarried graduate students. Furniture may be rented when available through the furniture rental program. Apartments are assigned from a waiting list based on the date the completed application and $150 refundable deposit are received. Units for use by handicapped students are available on a limited basis. Information and applications may be requested by calling Housing Reservations at 509-335-4577. Written requests may be mailed to: Housing Reservations, WSU Housing Services, PO Box 641726, Pullman, WA 99164-1726.

Housing Services
Streit-Perham Administrative Office
509-335-7789
www.livingat.wsu.edu

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Tuition and Fees

IMPORTANT NOTE: Current tuition and fee information may be found at www.wsu.edu/studacct/tuitionFees.htm.

Tuition, fees, and other charges are subject to change and are effective when established by the legislature of the state of Washington and adopted by the WSU Board of Regents. Figures are updated online at www.wsu.edu/studacct as they become available.

Tax sources of the state finance the major portion of facilities and operation of the instructional programs, student services, and related activities. Students share in the costs by paying tuition, fees, and other charges as established by the Board of Regents.

Please note this chart includes only undergraduate and graduate resident and nonresident rates. WSU has several different programs with different rates, including studies in Veterinary Medicine, Doctor of Pharmacy, Graduate in Nursing, WWAMI, and a Special Masters in Business Administration. If you are interested in one of those areas, please contact those departments for their entrance requirements and tuition rates.

Payment of registration fees is due on or before the first day of the term.

### ESTIMATED REGISTRATION FEES per semester

#### FULL-TIME FEES

<table>
<thead>
<tr>
<th></th>
<th>Undergraduate</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident (10-18 hrs)</td>
<td>$3,365.00</td>
<td>$4,039.00</td>
</tr>
<tr>
<td>Resident (19 hrs and above add per credit)</td>
<td>311.00/cr</td>
<td>378.00/cr</td>
</tr>
<tr>
<td>Nonresident (10-18 hrs)</td>
<td>8,883.00</td>
<td>9,843.00</td>
</tr>
<tr>
<td>Nonresident (19 hrs and above add per credit)</td>
<td>862.00/cr</td>
<td>958.00/cr</td>
</tr>
</tbody>
</table>

#### PART-TIME FEES (per credit hour; minimum charge: 2 credit hours)

<table>
<thead>
<tr>
<th></th>
<th>Undergraduate</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident</td>
<td>$337.00</td>
<td>$404.00</td>
</tr>
<tr>
<td>Nonresident</td>
<td>888.00</td>
<td>984.00</td>
</tr>
</tbody>
</table>

1. Note: There is a two credit minimum charge. Full time students are in 10 through 18 credit hours for fee paying purposes but Federal Financial Aid rules require a minimum of 12 credits for undergraduate students. Math 99 does not count. Students enrolling in more than 18 credit hours pay the additional per credit amount as noted.

Credit Card Payments

The University Payments Web site will be accepting Mastercard, Discover and American Express credit cards for the payment of tuition and fees beginning July 1, 2008. We will no longer accept Visa cards for payment of charges on your student account.

To make your credit card transaction more secure, WSU has contracted with a third party to process the payments. This processor maintains the highest level of internet security, so you can make your payment with confidence. The processor will assess a 2.5% service fee on each transaction.

WSU will continue to accept electronic check payments at no cost to you.

The savings generated by no longer absorbing credit card merchant fees will be used to fund scholarships and student programs.

### ADVANCE PAYMENT (Due prior to final admission) $200.00

### SPECIAL REGISTRATION FEES

<table>
<thead>
<tr>
<th>Service</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate Leave Status</td>
<td>25.00</td>
</tr>
<tr>
<td>Auditing a Course, per audit hour</td>
<td></td>
</tr>
<tr>
<td>(does not apply to full-fee-paying students)</td>
<td>105.00</td>
</tr>
<tr>
<td>Challenging a Course (See Rule 15)</td>
<td>320.00</td>
</tr>
<tr>
<td>State Employee, Staff and Faculty, Exempt, or Senior Citizen Registration</td>
<td>5.00</td>
</tr>
</tbody>
</table>

Consult the Schedule of Classes for additional fees related to specific courses.

### OTHER FEES AND CHARGES

<table>
<thead>
<tr>
<th>Service</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admission application, undergraduate (nonrefundable)</td>
<td>50.00</td>
</tr>
<tr>
<td>Chinook Yearbook</td>
<td>48.46</td>
</tr>
<tr>
<td>Copyright fee, optional (Ph.D., Ed.D., and D.DES)</td>
<td>65.00</td>
</tr>
<tr>
<td>Cougar card, charge for replacement</td>
<td>10.00</td>
</tr>
<tr>
<td>Course withdrawal fee, after 30th day of the semester, per class (tuition will still be owed)</td>
<td>5.00</td>
</tr>
<tr>
<td>CUB Renovation Fee</td>
<td>120.00</td>
</tr>
<tr>
<td>Dishonored checks, service charge</td>
<td>30.00</td>
</tr>
<tr>
<td>Foreign Student Orientation (graduate students)</td>
<td>50.00</td>
</tr>
<tr>
<td>Graduate School application</td>
<td>50.00</td>
</tr>
<tr>
<td>Graduate School certificates</td>
<td>25.00</td>
</tr>
<tr>
<td>Graduation application, Bachelor's Degree</td>
<td>41.00</td>
</tr>
<tr>
<td>Graduation application, Master's and Doctor's Degrees</td>
<td>50.00</td>
</tr>
<tr>
<td>Late payment fee on unpaid balances vary by amount and by date and may be found at the Student Accounts Web site.</td>
<td></td>
</tr>
<tr>
<td>Late registration on or after the first day of the semester</td>
<td>25.00</td>
</tr>
<tr>
<td>Late registration after 10th day of semester</td>
<td>100.00</td>
</tr>
<tr>
<td>Math Placement Exam</td>
<td>25.00</td>
</tr>
<tr>
<td>Medical expense insurance (estimated annual cost; optional for all but international students)</td>
<td>1,318.00</td>
</tr>
<tr>
<td>Microfilm (applicable to Ph.D. and Ed.D. degree candidates only)</td>
<td>75.00</td>
</tr>
<tr>
<td>Replacement diploma, undergraduate students</td>
<td>50.00</td>
</tr>
<tr>
<td>Replacement diploma, graduate students</td>
<td>65.00</td>
</tr>
<tr>
<td>Sponsored Foreign Student Administrative Charge (each term)</td>
<td>300.00</td>
</tr>
<tr>
<td>Sports Pass - undergraduates, academic year</td>
<td>129.00</td>
</tr>
<tr>
<td>Sports Pass - graduate and professional students, academic year</td>
<td>175.00</td>
</tr>
<tr>
<td>Stadium Renovation Fee, undergraduates</td>
<td>25.00</td>
</tr>
<tr>
<td>Student Computing Services Server/Lab pass fee</td>
<td>65.00</td>
</tr>
<tr>
<td>Student Concert Pass</td>
<td>60.00</td>
</tr>
<tr>
<td>Student Matriculation Fee (for all degree seeking students)</td>
<td>215.00</td>
</tr>
<tr>
<td>Student Petitions for Exceptions to Academic Calendar Deadlines</td>
<td>10.00</td>
</tr>
<tr>
<td>Student Recreation Center fee (per semester)</td>
<td>136.50</td>
</tr>
<tr>
<td>WSU Health and Wellness Services fee, per semester (fee assessed to every student registered for 7 credits or more)</td>
<td>126.00</td>
</tr>
<tr>
<td>Teacher's Statutory Certification</td>
<td>37.00</td>
</tr>
<tr>
<td>Transcript (per copy)</td>
<td></td>
</tr>
<tr>
<td>Regular</td>
<td>5.00</td>
</tr>
<tr>
<td>Electronic</td>
<td>8.00</td>
</tr>
<tr>
<td>Emergency (delivery within 24 hrs)</td>
<td>10.00</td>
</tr>
<tr>
<td>Transit fee 7 credits or more</td>
<td>15.00</td>
</tr>
<tr>
<td>Transit fee 6 credits or less</td>
<td>8.00</td>
</tr>
<tr>
<td>Undergraduate certificates</td>
<td>50.00</td>
</tr>
<tr>
<td>Veterinary Medicine application</td>
<td>60.00</td>
</tr>
<tr>
<td>Writing Placement Exam</td>
<td>13.37</td>
</tr>
</tbody>
</table>

Note: Overdue accounts owed the University will prevent release of transcripts, diplomas, and enrollment. Registration is not complete until all of the student’s tuition and fees are paid.

Payments by International Students

Suggested methods of payment are International Postal Money Orders or Checks, traveler’s checks, and bank money orders which are payable through a United States financial institution. Selected credit cards may be used to pay for anything on student accounts either in person or over the WSU Infonet. Other methods of payment may subject you to charges for expenses incurred by Washington State University to collect U.S. funds.
REFUND POLICY

Registration Fees

Students who cancel their enrollment after the semester has started will be charged an administrative fee of five percent of the assessed tuition and mandatory fees, but no more than $100.00, in addition to other amounts owing. Tuition, operating, and student services and activities fees will be refunded in full if students officially withdraw from the University prior to the sixth day of classes during a given semester. Students who cancel their enrollment after the semester has started will have those charges reduced based upon the week of cancellation as follows:

<table>
<thead>
<tr>
<th>Week</th>
<th>Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100%</td>
</tr>
<tr>
<td>2</td>
<td>90%</td>
</tr>
<tr>
<td>3</td>
<td>80%</td>
</tr>
<tr>
<td>4</td>
<td>70%</td>
</tr>
<tr>
<td>5</td>
<td>60%</td>
</tr>
<tr>
<td>6</td>
<td>50%</td>
</tr>
<tr>
<td>7</td>
<td>40%</td>
</tr>
<tr>
<td>8</td>
<td>30%</td>
</tr>
<tr>
<td>9</td>
<td>20%</td>
</tr>
<tr>
<td>10</td>
<td>10%</td>
</tr>
</tbody>
</table>

Weeks during which the University is on vacation for the entire week do not count in this adjustment schedule. Adjustments or refunds for students who receive financial aid will be computed on a modified schedule provided by the Federal Financial Aid Office.

Course Withdrawals After the 30th Day

No tuition adjustment for individual course withdrawals will be made beginning 30 calendar days after the start of the semester. For example, a student who is enrolled in 16 credit hours and withdraws after the fourth week from a 3-credit course and adds a 3-credit course is accountable for 19 hours. In this example, the student would owe for the one credit over 18 credits.

Full refunds of the additional per credit hour charges (for each credit over 18) are given if the credit load is reduced to 18 hours or fewer within the first 30 calendar days of the semester.

Special Course Fees and Activity Fees

A full refund of special tuition and course fees will be granted to students who withdraw within the first 10 days of instruction of the semester (first five days of the start of instruction for second block courses) from a course requiring a special course fee. There is no refund of special tuition and course fees after the 10th day of instruction of the semester (after the 5th day of the start of instruction for special block courses). A request for refund is required on special block courses. Refunds given as an exception to this policy may be requested through the academic department which provides the course(s).

Student Health and Wellness Services Fee

Upon withdrawal from the University, the health fee will be reduced according to the same percentages per week as stated above for tuition and fees, as long as no health services have been provided to the student. A refund of the health fee may be denied if the student has utilized health services during the semester.

Student Medical Insurance

Washington State University sponsors an optional medical insurance plan for students who are enrolled in 7 or more credits. Plan features include coverage for surgery, hospitalization, vision, prescription drugs, and more. Coverage is available worldwide. Contact Health and Wellness Services at (509) 335-8216 or visit www.hws.wsu.edu for additional plan information.

International students, regardless of the number of credit hours are automatically enrolled in the medical insurance plan. International students may submit an equal or better alternative plan to receive a waiver. The substitute medical insurance plan must be submitted to the Health and Wellness Services office within the first five days of each semester.

Student Recreation Center

Upon withdrawal from the University, the Student Recreation Center fee will be refunded according to the same percentages per week as stated above for tuition/fees.

Sports Pass

Refunds, when applicable, may be obtained by applying in person, during the first 10 days of the fall semester at the Athletic Ticket Office. This refund, if approved, is then processed through Student Accounts in French Ad. Failure to cancel your sports pass through the Athletic Ticket Office by the stated deadline will result in your obligation to pay whether or not you have utilized your sports pass.

Student Computing Services Server/Lab Pass

Refunds, when applicable, may be obtained by applying in person by the deadline date at any of the Student Computing Services Labs (ITB 2091, CUE 302/402, Gannon/Goldsworthy 58, Stephenson Residential Complex 206, Honors 10 and Steire Hall 60).

Housing and Dining Services

Specific details of the Housing and Dining Services refund policy are noted in the Housing and Dining contracts.

Canceling Enrollment and Refund Appeal Procedures

WSU Pullman and Regional Campus Students

Students who wish to drop all of their classes before the first day of the semester must do so via myWSU. After the semester has started, students can cancel their enrollment by filling out the online cancellation of enrollment form at www.cANCEL.wsu.edu. In the event of technical problems, contact the Registrar's Office at 509-335-5346 or the regional campus registration office. Students canceling enrollment under certain unusual circumstances, such as documented health problems, death in the immediate family, military service, or job relocation may be eligible to petition for a reduction in tuition for the current semester. Consult with the registration office on the appropriate campus regarding these procedures.

Residency for Tuition-Paying Purposes

www.registrar.wsu.edu

Residency for tuition and fee purposes is determined by the Washington State Legislature.

The administration of Washington state law regarding residency status shall be the responsibility of the Board of Regents. The Office of the Registrar is assigned the responsibility to represent the Board of Regents on questions of residency status for undergraduate and professional students. The Graduate School represents the Board of Regents for graduate students.

A student is a resident if (1) he or she is financially dependent on a parent(s) or legal guardian and (2) one parent or legal guardian maintains a bona fide domicile in the state of Washington. A student is a resident if (1) he or she is financially independent of his or her parent(s) or legal guardian and (2) he or she maintains a bona fide domicile in the state of Washington that is separate and distinct from an educational purpose. Washington State law provides that it is the student's burden to prove that he or she is a resident for tuition-paying purposes. Please refer to the list of evidence to be considered below.

Residency status for students, who are not resident for tuition paying purposes, may be considered by the following:

1. Registration of motor vehicles, motor homes, travel trailers, boats, or other personal property
2. Driver's license
3. Employment records
4. Income tax returns
5. Voter registration
6. Selective service registration
Tuition and Fees

7. Purchase of primary residence, lease agreement or monthly rental receipts
8. Resident status of students in schools attended outside the state of Washington
9. Membership in professional, business, civic or other organizations
10. Records of checking or savings accounts and safety deposit box rental

Once a student’s residency classification has been determined, that classification will remain unchanged in the absence of written evidence justifying change during the time the student is in continuous enrollment.

Applications for change in residency status and all supporting evidence must be submitted to the Office of the Registrar or the Graduate School no later than the 30th calendar day following the first day of instruction of the semester for which application is made. The burden of proof of residency status lies with the student.

If erroneous, untrue, or incorrect information submitted on an application results in an improper classification of resident or nonresident status or a final determination is reversed through the appeals process, Washington State University shall recover from the student or refund to the student, as the case may be, an amount equal to the total difference in tuition and fees had proper classification been made.

In accordance with RCW 28B.15.014 certain nonresidents may be exempt from paying the nonresident tuition and fee differential. To be eligible for an exemption a nonresident student must provide documented evidence that the student resides in the state of Washington and (1) holds a graduate service appointment involving not less than 20 hours per week; (2) is a faculty member, classified staff member, or administratively exempt employee holding not less than a half-time appointment or the spouse or dependent child of such a person; or (3) is an immigrant having refugee classification from the U.S. Immigration and Naturalization Service or the spouse or dependent child of such refugee, if the refugee (a) is on parole status, or (b) has received an immigrant visa, or (c) has applied for United States citizenship. Exemption from nonresident tuition and fee differential shall apply only during the term(s) such person shall hold such classification, appointment, or be employed. To determine if you qualify for one or more of these exemptions, graduate students may apply at the Graduate School, French Administration Building, Room 324, and undergraduates may apply at the Office of Student Affairs, Lighty Student Services Building, Room 360.

Additional information about residency requirements and the application for change of residency status can be found at www.registrar.wsu.edu or by contacting the Registrar’s Office at 509-335-4766. The Washington State Legislature determines residency classification and the law applies to all colleges and universities in the state. See RCW 28B.15.012 at http://apps.leg.wa.gov/rcw/default.aspx?cite=28B.15.012. The General Catalog is intended to provide a brief summary of the residency requirements and does not replace or supersede any residency law enacted by the Legislature.
The College of Agricultural, Human, and Natural Resource Sciences generates and disseminates knowledge about physical, biological, social, and economic aspects of agriculture, natural resources, consumer, and family sciences that is vital to the well being of our state and nation. The college also offers formal classroom instruction, ongoing research programs, and outreach programs through Extension. All of these contribute to the development of Washington’s human and natural resources.

The college offers approximately 25 majors that prepare professionals for careers in agricultural systems, natural resource management, food production, processing, and distribution, as well as in areas of health, apparel, and interior design. Students receive a solid base in science with a technological grounding that enables them to remain abreast of the dynamic fields of agricultural, human, and natural resource sciences. Study programs also help prepare graduates to live and work in our environmentally conscious and globally focused economy and society. All degree programs provide students with opportunities for interactions with researchers in the classroom and in their labs/studios, and with hands-on experiences in their fields through internships.

Agriculture and natural resources are two of the most important industries in the state of Washington. Although the number of individuals directly involved in production agriculture has declined, the overall agricultural industry remains Washington’s number one industry economically and offers an increasing number of job opportunities. Programs in agriculture and natural resource sciences prepare students for a wide variety of careers, including business and finance, economics, communications, food processing, natural resource management, pest management, and sales and distribution of food products. Graduates are qualified to be agricultural producers, land managers, agriculture teachers, media specialists, landscape architects, or industry representatives for agriculture or natural resources. Students who earn graduate degrees are prepared to follow scientific careers in research, college teaching, Extension, and highly technical pursuits in industry and government.

The College of Agricultural, Human, and Natural Resource Sciences offers unique opportunities to prepare students interested in pursuing a career in veterinary medicine. Animal Sciences and Natural Resource Sciences have programs that allow students to prepare for admission to veterinary school and earn a baccalaureate degree simultaneously.

College programs in the human sciences prepare students for positions as dietitians, pre-school to third grade educators, teachers of family and consumer sciences, human science agency managers, and directors of aging programs. Other careers include apparel, merchandising, interior design, consumer services, or commercial food service. Students who graduate are prepared to teach in public schools, to work in adult education, and to administer and supervise preschool and child care centers. Those who earn advanced degrees are educationally qualified to fill positions in research, extension, governmental agencies, foreign services, college teaching, and business.

Admission

The requirements for admission to the College of Agricultural, Human, and Natural Resource Sciences are the same as those for WSU. High school students planning to enroll in the college are urged to work closely with their counselors and with representatives from WSU in developing an appropriate background of high school courses in biological, physical, and social sciences, mathematics, and other elective areas.

Transfer Students

Most transfer students who have completed one year in another college or university ordinarily will have no difficulty in completing the requirements for one of the bachelor’s degrees in three additional years.

Some students who have completed two years before transferring could have some difficulty in completing requirements in two additional years because of required courses and course sequences. To avoid this difficulty, students enrolled in other colleges or universities but planning to transfer to the College of Agricultural, Human, and Natural Resource Sciences should concentrate as much as possible on general education, science, and other departmental requirements normally scheduled during the freshman and sophomore years, with particular attention to those subjects required for the intended majors. Students at community colleges in the state should check to see whether there is an articulation agreement between their institution and the WSU program of interest. Students should also contact a College of Agricultural, Human, and Natural Resource Sciences advisor in their area of interest.

Requirements for Graduation

Requirements for graduation in the College of Agricultural, Human, and Natural Resource Sciences vary according to the major and the degree to be granted, as described in the departmental sections of this catalog. The student and the advisor jointly have the responsibility of selecting courses to fit the student’s native ability and professional interests, consistent with departmental and general education requirements. Students are encouraged to do more than satisfy the minimum requirements.

Agriculture and Natural Resource Science Degrees

Degree | Department
---|---
Bachelor of Science | Economic Sciences
Agribusiness Economics and Management | CAHNRS Academic Programs (including Agricultural Business and Technology Systems with options in Agri-Food Production Management, Agri-Food Business Management, Communications, and Technology; Agricultural Education; Organic Agriculture Systems; Pest Management Systems; and Plant and Soil Systems (with options in Cropping Systems, Horticulture Systems, and Soil Management))
Agricultural Economics and Management | Animal Sciences
Animal Sciences | Crop Science (including Business and Industry, Cropping Systems, Science/Biotechnology, and Turfgrass Management)
Environmental and Resource Economics and Management | Food Science and Human Nutrition (including Coordinated Program in Dietetics and General Dietetics)
Horticulture (including Environmental Horticulture, Fruits and Vegetables, and Viticulture and Enology) | Natural Resource Sciences (including Forestry, Natural Resource Sciences, and Wildlife Ecology majors)
Soil Science | Crop and Soil Sciences (including Environmental Soil Science, Precision Farming, Soil Management, and Sustainable Agriculture)
**Degree**

**Bachelor of Landscape Architecture**  
Landscape Architecture  
Horticulture and Landscape Architecture

**Bachelor of Arts**  
Apparel, Merchandising, Design, and Textiles  
(Applying Apparel Design, and Merchandising)  
Economics  
Human Development  
(Applying Adolescence, Gerontology, Early Childhood and Family Studies Certificates, teacher certification in Early Childhood Education and Family and Consumer Sciences Education)  
Interior Design

**Master of Regional Planning**  
Regional Planning  
(Interdisciplinary Degree)  
Earth and Environmental Science

**Master of Science**  
Agriculture  
Animal Sciences  
Biological and Agricultural Engineering  
Crop Science  
Entomology  
Food Science  
Horticulture  
Human Nutrition  
(Thesis and Non-Thesis options)  
Landscape Architecture  
Crop and Soil Sciences  
Animal Sciences  
Biological Systems Engineering  
Crop and Soil Sciences  
Entomology  
Food Science and Human Nutrition  
Horticulture and Landscape Architecture  
Food Science and Human Nutrition

**Master of Arts**  
Apparel, Merchandising, Design, and Textiles  
Applied Economics  
Human Development  
Interior Design

**Doctor of Philosophy**  
Agricultural Economics  
Animal Sciences  
Biological and Agricultural Engineering  
Crop Science  
Economics  
Entomology  
Food Science  
Horticulture  
Molecular Plant Sciences  
Nutrition  
Plant Pathology  
Soil Science  
Statistics  
(Interdisciplinary Degree)  
Economic Sciences  
Animal Sciences  
Biological Systems Engineering  
Crop and Soil Sciences  
School of Economic Sciences  
Entomology  
Food Science and Human Nutrition  
Horticulture and Landscape Architecture  
Molecular Plant Sciences  
Food Science and Human Nutrition  
Plant Pathology  
Crop and Soil Sciences  
Statistics

**COllege OF BUSINESS**

Eric R. Spangenberg, Dean  
Todd Hall, Room 570  
509-335-3596  
www.business.wsu.edu

The College of Business (CB) is dedicated to innovative teaching and learning, world-class research, and the pursuit of excellence in all levels of business education. The CB spans three campuses of Washington State University with the largest campus in Pullman and regional campuses located in Vancouver and the Tri-Cities area. The CB conducts scholarly and applied research and offers degree programs in a variety of business disciplines and in hospitality business management, and supplements these offerings through innovative online learning and exchange programs throughout the world.

The CB is among two percent of business schools worldwide to be accredited by the Association to Advance Collegiate Schools of Business (AACSB) at the bachelor, master, and doctoral levels, and is ranked among the top ten business programs at public universities in the Western United States by US News and World Report.

The College of Business is developing globally competent business leaders who will successfully drive the commercialization of innovation across disciplines.

Through the College's annual business plan competition and national venture forums, students drive the execution and delivery of transformational innovations.

The College celebrated 50 years of excellence in graduate education in 2007. A MBA curriculum focuses on the management of innovation to develop leaders who can successfully take new products to market. Graduate program offerings now include an Executive MBA program.

Students develop global competencies in study-abroad programs and international internships facilitated by the CB International Business program, ranked in the Top 25 by US News and World Report.

The Scott and Linda Carson Center for Professional Development equips students with the skills and knowledge necessary for personal and professional success.

**Areas of Study**

The college departments—accounting; information systems; finance, insurance and real estate; marketing; and management and operations—offer the following majors for the Bachelor of Arts in Business Administration degree:

- Accounting
- Accounting and Information Systems
- Business Administration (Vancouver and Tri-Cities campuses only)
- Entrepreneurship
- Finance (six career tracks include Risk Management/Insurance and Real Estate)
- International Business
- Management Information Systems (Operation or Organization tracks)
- Management and Operations
- Marketing

Within the college a specialized Bachelor of Arts degree is offered in the area of Hospitality Business Management.

Graduate work may be taken in business administration and accounting leading to Master and Doctor of Philosophy degrees.

**Minors**

Minors are available in the following business administration fields: accounting, business administration [only non-business majors are eligible], entrepreneurship, finance, human resource/personnel, international business, management information systems, and marketing. A minor in hospitality business management is also available. For specific information regarding minor requirements, see the Business Administration and Hospitality Business Management sections of this catalog.

**Admission**

Admission is competitive and based on capacity. Students should certify into hospitality business management or a particular business major upon completion of 60 hours of credits and specific course and GPA requirements.
We are committed to the advancement of the University and to disseminating knowledge in a world where interpersonal and mediated communication play important roles. We are dedicated to educating professional, ethical, and socially responsible citizens. Such an education shall provide students with an understanding of the social, political and ethical implications of communication. We are committed to developing in students a dedication to lifelong learning, communication skills, analytical and critical thinking skills, appreciation of diversity, and professional excellence. Our students learn through traditional teaching methods, innovative approaches to learning and application of professional skills and knowledge. In addition to undergraduate instruction, graduate education is an important component of our mission. Thus, we are also dedicated to guiding exceptional students’ development as teachers, researchers, and leading professionals.

Research is necessary to fully serve our constituents including students, industry, policy makers, and the communication discipline. As active members of a Research I institution, we are dedicated to the pursuit of knowledge regarding the complex and multifaceted nature of communication. We pursue quality research that respects and is informed by diverse disciplines, perspectives, and methods and strive to contribute knowledge with both theoretical and practical implications. Because research enhances teaching, we aim to develop and maintain a mutually beneficial relationship between research and instruction.

As citizens, we endeavor to share our expertise and abilities with the broader community. We are committed to the advancement of the University and local, national and international communities through service activities beyond research and instruction. Such activities are exemplified by faculty outreach to various community and industry groups, and by faculty participation in decision making at all levels of the University.

Seeking understanding of communication and its role in society, teaching that understanding in the classroom and beyond, and applying our knowledge in the broader community thus comprise the mission of the College of Communication.

Named for its most illustrious alumnus, the Edward R. Murrow College of Communication is highly regarded nationwide by educators and professionals. It has won national and regional Emmys for student television productions, is nationally ranked 4th in television news and first in the Northwest for its public relations sequence, and has a faculty and student body with good gender and racial diversity.

Study in the College provides exposure to new computer-based technologies. The Edward R. Murrow College of Communication has three computer labs, including a writing lab, an advanced graphics environment, and a digital audio lab. The college also has a broadcast news lab, television production studios and TV editing suites; a radio station and radio/audio labs; and a state-of-the-art news production/broadcast lab with NewStar computer systems.

The Edward R. Murrow College of Communication is the only program in the Northwest that offers sequences in all six communication fields: advertising, broadcasting, communication, communication studies, journalism, and public relations. It offers the only comprehensive broadcast program in the state of Washington. The School is noted for combining professional skill building and theory and is one of only a few programs in the nation that airs a daily, student-produced television newscast.

**Admission**

To certify a major in communication a student must meet the following minimum requirements:

2. Earn a grade no lower than C in Communication 295.

The Communication GPA and the cumulative GPA are averaged together.

Students will then be placed in rank order. The top students then are certified based on how many spots are available that semester, approximately 140 spots in Fall; 115 spots in Spring; and 40 spots in the Summer. Limitation is imposed because of limited space, equipment and faculty resources. Students transferring into the department with 55 or more hours should complete the certification requirements within two semesters.

All students should apply to certify before earning 90 credit hours.

COM 295 - All students must apply for Communication 295 Media Writing.

Entrance to Communication 295 is based on cumulative GPA, for transfer students it is based on your transfer GPA. The course should be taken your second semester sophomore year or first semester junior year to graduate in four years. Applications are available outside of the Main Office in October for the Spring semester, and in March for the Summer and Fall semesters. A student should have at least 40 credits before applying. Upon completion of Communication 295 a student must apply for certification.

**Requirements for Graduation**

Requirements for graduation in the College of Communication vary according to the major and the degree to be granted, as described in the department sections of this catalog. The student and the advisor jointly have the responsibility of selecting courses to fit the student’s native ability and professional interests, consistent with departmental and general education requirements.

**Degrees**

The College of Communication offers programs of study leading to the following degrees:

**Degree**

**Bachelor of Arts, Communication**

**Emphasis**

Advertising
Applied Intercultural Communication
Broadcast Management
Broadcast News
Communication Studies
Journalism
Organizational Communication
Public Relations
Bachelor of Science, Kinesiology
Educational Leadership

COLLEGES AND THE GRADUATE SCHOOL
Bachelor of Arts, Sport Management
Bachelor of Arts, Education

Degree
Undergraduate degrees offered in the College of Education are as follows:

Degree
Bachelor of Arts, Education
Bachelor of Arts, Sport Management
Bachelor of Science, Kinesiology
(Athletic Training, or Movement Studies, or Health and Fitness)

Doctor of Philosophy

Degrees
Graduate degrees offered by the College of Education are as follows:

Degree
Master of Education
Doctor of Philosophy

Areas of Specialization
Counseling
Curriculum and Instruction
Educational Leadership (K-12)
Educational Psychology
ESL/Bilingual
Higher Education Administration
Literacy
Special Education
Sport Management
Counseling
Curriculum and Instruction
Educational Leadership (K-12)
Educational Psychology
ESL/Bilingual
Higher Education Administration
Literacy
Special Education
Sport Management
Elementary Education
Secondary Education
Curriculum and Instruction
Educational Leadership (K-12)
Higher Education Administration
Special Education
Educational Leadership (K-12)
Counseling Psychology
Cultural Studies and Social Thought in Education
Educational Psychology
Higher Education Administration,
Student Affairs
Language and Literacy Education
Math Education

Master in Teaching

Doctor of Education

Master of Arts

Areas of Specialization

Doctor of Philosophy

Master of Arts, Communication
Health Communication
Intercultural and International Communication
Media Processes and Effects
Media and Society
Organizational Communication
Health Communication
Intercultural and International Communication
Media Processes and Effects
Media and Society
Organizational Communication

COLLEGE OF EDUCATION
Judy Nichols Mitchell, Dean
Cleveland Hall
509-335-1738
www.education.wsu.edu

The College of Education consists of the Department of Educational Leadership and Counseling Psychology and the Department of Teaching and Learning. The college has both degree and certification programs. The College of Education offers degree programs which prepare teachers for elementary school, secondary school, and college instruction; specialists and researchers in a variety of educational fields; administrators for schools, colleges, and universities; and sport-related specialists for private and community agencies. The college also provides professional training in movement studies, athletic training, counseling, and counseling psychology. It offers a variety of educational services to local school systems.

At the baccalaureate level, the General Education Requirements provide a foundation for professional work in the College of Education through offerings in the arts and humanities and in the social and natural sciences. Practical experiences are integrated with course work throughout professional preparation curricula.

The mission of the certification programs in the College of Education is to furnish intensive preparation for persons who serve or aspire to serve in teaching, supervisory, special services, or administrative fields at all levels of education as well as in related areas of professional services. Candidates for certification must demonstrate knowledge and competencies at qualified levels of professional practice.

Graduate programs in the College of Education offer advanced course work and field experience in education and human services. Certification programs in administration and counseling are available at the graduate level. Doctoral programs focus on preparation of administrative personnel for the schools, counselors, community colleges, teacher educators, and educational researchers. Graduate programs stress scholarship as a basis for all professional endeavors.

Teacher education curricula at all degree levels in the College of Education are accredited by the National Council for Accreditation of Teacher Education. The doctoral program in counseling psychology is accredited by the American Psychological Association. The College of Education is a member of the American Association of Colleges for Teacher Education and the University Council on Educational Administration.

The College of Education also functions as a service institution for schools and communities in the state of Washington. Applied research services are provided to education and health-related agencies throughout the United States and internationally. Services of faculty are available for consultant purposes, school studies, professional development programs, school seminars, and community conferences in the departmental specialties.

Degrees
Undergraduate degrees offered in the College of Education are as follows:

Degree
Bachelor of Arts, Education
Bachelor of Arts, Sport Management

Area of Specialization
Health Communication
Intercultural and International Communication
Media Processes and Effects
Media and Society
Organizational Communication
Health Communication
Intercultural and International Communication
Media Processes and Effects
Media and Society
Organizational Communication

COLEGE OF ENGINEERING AND ARCHITECTURE
Candis Claiborn, Dean
Dana Hall, Room 146
509-335-5593
www.cea.wsu.edu

The College of Engineering and Architecture provides instruction, research, and public service in engineering, architecture, construction management, computer science, and materials science. Academic units in the college offering engineering degree programs are chemical engineering and bioengineering, civil and environmental engineering, electrical engineering and computer science, mechanical and materials engineering, and mechanical engineering and computer science in Vancouver. The School of Architecture and Construction Management offers degrees in architecture and construction management. The PhD in Materials Science is offered through an interdisciplinary program through the College of Engineering and Architecture and the College of Sciences.

The college's undergraduate degree programs prepare graduates for both professional careers and advanced study and are known for their practical, hands-on components coupled with a strong foundation of basic principles. The college's programs use formal classroom instruction, coupled with individual and group projects, seminars, and individually directed studies to prepare students to develop solutions that are technically, socially, and economically appropriate. Many students also gain work experience in their fields of interest through employment on college research projects or internships in industry.

Faculty, graduate students, and staff in the college perform basic and applied research addressing problems of state, national, and international importance. Research projects are designed to enhance economically, ecologically, and culturally sound use of our material resources and to promote well-balanced industrial and professional development. Research is an integral part of graduate degree programs, providing graduate project topics and opportunities for...
graduate student interactions with outside professionals. The college's research also strengthens its undergraduate programs by involving undergraduate students in relevant creative exploration and by keeping undergraduate course content current with the latest research developments.

The college provides important educational services to industries, professions, and the general public. Short courses, conferences, and workshops taught by college faculty produce valuable interactions among professionals and deliver current technical information to these audiences. Faculty of the college also serve as editors, authors, and reviewers for professional journals serving the nation and the world.

The college offers undergraduate degree programs of sufficient breadth to enable its graduates to choose employment from a large number of specialties within their general fields. Opportunities for specialization are made available to qualified students through graduate programs in the various schools and departments.

Students majoring in degrees offered by the College of Engineering and Architecture are guided in selection of courses in arts and humanities, social sciences, intercultural studies, and communication to integrate general education requirements with needs of the major. Students are encouraged to take general education courses concurrently with courses in the major to facilitate effective integration of subjects for practical application. Students planning to transfer to Washington State University after completing general education requirements at other institutions should obtain sample schedules of studies for their proposed major at WSU to be familiar with specific requirements for that major.

Additional information on the College of Engineering and Architecture is available on-line.

Degrees

Degrees offered in the College of Engineering and Architecture at the Pullman campus are listed below (exceptions are listed in parentheses):

<table>
<thead>
<tr>
<th>Degree</th>
<th>Department or Area</th>
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<tbody>
<tr>
<td>Bachelor of Arts</td>
<td>Computer Science (also Tri-Cities)</td>
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<tr>
<td>Bachelor of Science</td>
<td>Architectural Studies</td>
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<td></td>
<td>Bioengineering</td>
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<td></td>
<td>Chemical Engineering</td>
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<td></td>
<td>Civil Engineering</td>
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<td></td>
<td>Computer Engineering</td>
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<tr>
<td></td>
<td>Computer Science (also Tri-Cities and Vancouver)</td>
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<td></td>
<td>Construction Management</td>
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<td></td>
<td>Electrical Engineering</td>
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<tr>
<td>Master of Architecture</td>
<td>Materials Science and Engineering</td>
</tr>
<tr>
<td>Master of Engineering</td>
<td>Mechanical Engineering (also Tri-Cities and Vancouver)</td>
</tr>
<tr>
<td>Management</td>
<td>Architecture</td>
</tr>
<tr>
<td></td>
<td>Engineering Management (Spokane, Tri-Cities, and Vancouver only)</td>
</tr>
<tr>
<td>Master of Science</td>
<td>Engineering Management (Spokane only)</td>
</tr>
<tr>
<td></td>
<td>Biological and Agricultural Engineering</td>
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<tr>
<td></td>
<td>Chemical Engineering</td>
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<td></td>
<td>Civil Engineering</td>
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<td></td>
<td>Computer Science (also Tri-Cities and Vancouver)</td>
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<td></td>
<td>Electrical Engineering (also Tri-Cities)</td>
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<td></td>
<td>Engineering</td>
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<td>Environmental Engineering (also Tri-Cities)</td>
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<td></td>
<td>Materials Science and Engineering</td>
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<tr>
<td>Doctor of Philosophy</td>
<td>Mechanical Engineering (also Tri-Cities and Vancouver)</td>
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<tr>
<td></td>
<td>Biological and Agricultural Engineering</td>
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<td></td>
<td>Chemical Engineering</td>
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<td></td>
<td>Civil Engineering</td>
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<td></td>
<td>Computer Science (also Tri-Cities)</td>
</tr>
</tbody>
</table>

Engineering

Engineering practice is based on sound fundamental and practical knowledge of mathematics, the sciences, and liberal arts. Basic sciences and mathematics form the foundation on which engineering science and engineering design courses are built. Engineering courses prepare students to solve problems in society by qualitatively and quantitatively analyzing alternatives and making decisions guided by economics and an awareness of social and ethical issues.

The established undergraduate engineering programs offered by the college are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, 410-347-7700. Accreditation for the bioengineering program and the Vancouver mechanical engineering and computer science programs has been applied for and is currently under consideration by ABET.

Graduate degrees in engineering, listed previously, are offered at the master’s and doctoral levels. Students desiring graduate degrees in areas not listed may arrange with the program of interest to pursue a Master of Science in Engineering or Doctor of Philosophy in Engineering Science, allowing their programs of study to be designed for their particular needs and interests. Admission to engineering graduate programs is open to qualified students with a recognized degree in engineering, mathematics, a physical science, or a biological science. Additional information about specific areas of active research may be obtained by contacting the Associate Dean for Research or the appropriate department chair or school director.

Strong supporting courses are available from the Departments of Mathematics, Physics, Chemistry, and the Program in Biology. The graduate programs are also supported by many excellent University facilities such as the Water Research Center, Albrook Hydraulics Laboratory, Laboratory for Atmospheric Research, Wood Materials and Engineering Laboratory, Electron Microscopy Center, Food Engineering Pilot Plant, National Science Foundation Center for Design of Analog/Digital Integrated Circuits, Power Systems Engineering Research Center, Center for Multiphase Environmental Research, Center for Integrated Biotechnology, Bioengineering Research Center, Center for Materials Research, Center for Intelligent and Networked Systems, Center for Asphalt Technology, Washington State Transportation Research Center, and Engineering Education Research Center.

Computer Science

Computer science is the scientific foundation for computing, with roots in mathematics, the sciences, and engineering. Computer science encompasses the theory and techniques by which information is represented, processed, stored, and communicated. It deals particularly with the theory of algorithm and the step-by-step procedures for creating software to solve a problem or accomplish some goal. Students study computer software and hardware systems for efficient solution of practical problems. The Bachelor of Science program in computer science, offered through the School of Electrical Engineering and Computer Science, is accredited by the Computing Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, 410-347-7700. Curricular specializations available include computer engineering, databases, distributed computing, networks, network security, operating systems, and software engineering. Students use a variety of scientific workstations, graphic workstations, and microcomputer laboratories, all of which are networked to each other and to national networks.

The Bachelor of Arts in Computer Science emphasizes breadth by requiring expertise in computer science and another area. The latter is accomplished through the requirements of a formal minor. The area of specialization within computer science are the same as those listed for the Bachelor of Science degree. The degree is accredited by the Computing Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, 410-347-7700.
Architecture and Construction Management

The School of Architecture and Construction Management offers programs of study in architecture and construction management. Practice in these fields relies on studies of the arts and humanities as well as the sciences and technologies. Courses are designed to provide both professional fields with the breadth and depth of knowledge necessary to respond to the environmental and cultural forces that continually shape the decision-making processes associated with each field.

Programs of study in the school lead to the following degrees: a Bachelor of Science in Architectural Studies (a four-year degree) followed by a three-semester Master of Architecture degree that is accredited by the National Architectural Accreditation Board (NAAB), a Bachelor of Science in Construction Management (a four-year degree) that is accredited by the American Council for Construction Education (ACCE) and a non-accredited Master of Science in Architecture with emphasis on design theory or design-build management.

Admission

Students must apply and be accepted (certified) into the undergraduate programs in the college before they may enroll in 300-400-level courses in the major. When admitted to Washington State University, students are assigned advisors in their indicated major for the period prior to their being certified in a major. Students may certify into a major after they have completed at least 24 semester credit hours and a prerequisite set of courses for the specific major.

Prospective students in engineering or computer science may apply for certification into the major of their choice upon completion of the applicable program requirements. Prospective students should contact the department or school administering their choice of majors to determine specific courses to be completed, application procedures, and application deadlines for certification. Factors considered in certification decisions include grades in science and math courses, grades in the major, overall grade point average, course repeats, professional experience and goals, and other indicators of the student’s potential for successful completion of the curriculum. Students denied certification into an engineering program may appeal to the Dean of the College of Engineering and Architecture for a review to ensure that departmental procedures were followed.

Prospective students in architecture are assigned to an architecture advisor and go through a step-by-step screening process scheduled at the end of the first year of study.

Prospective students in construction management are assigned to a construction management advisor and go through a step-by-step screening process scheduled at the end of the first year of study.

THE GRADUATE SCHOOL

Howard Grimes, Vice President for Research and Dean
French Administration Building, Room 324
509-335-6424
www.gradschool.wsu.edu

A graduate school has been described as a select community of scholars, faculty, and students dedicated to the extension of scholarship and the advancement of knowledge for the ultimate common good of mankind. The fields of intellectual and scholarly activity are numerous, and the student who contemplates graduate study should select a graduate school that offers a superior program in the chosen field. The student should study the accomplishments of the members of the graduate faculty, the adequacy of the research facilities, and the appropriateness of the curricula. For many, the Graduate School of Washington State University will provide advantageous and attractive opportunities.

Prospective graduate students should prepare themselves adequately, both in the fundamental subject matter necessary for their advanced work and in the other branches of learning, so that they may intelligently fulfill their responsibilities of leadership and service to society.

In a graduate program, a student is required to complete appropriate advanced courses, to participate in seminars, and to make an original contribution to knowledge. At least one academic year of graduate study, or the equivalent, is necessary for the completion of a program leading to a master’s degree. A doctor’s degree is awarded in recognition of distinctive scholarship.

The period of study for the Doctor of Philosophy degree is at least three years (six semesters) beyond the baccalaureate degree. For students without a master’s degree, at least two of these three years shall be in residence at Washington State University (enrolled full-time and present on a campus where a given program has received approval to grant residency). For students with a master’s degree, at least one of these three years shall be in residence at Washington State University (enrolled full-time and present on a campus where a given program has received approval to grant residency).

The period of study for the Doctor of Education degree is at least three years (six semesters) beyond the baccalaureate degree. At least two of these three years shall be in residence at Washington State University, including a minimum of four semesters, with at least one summer session and one semester being contiguous, when the student is enrolled full-time and present on the Pullman campus. Full-time enrollment for four summer sessions may be substituted for two academic year semesters. Summer session cannot be substituted for the semester contiguous with a summer session requirement for the doctoral degree.

Most advanced degree programs emphasize the preparation of students for careers as productive scholars, and accomplishments in research constitute an important part of the training. It is recognized also that those who earn advanced degrees often become the teachers in our institutions of learning. For this reason, in many departments special attention is given to the preparation of students for careers in the teaching profession.

Except as they apply to undergraduate students only, graduate students are subject to the usual procedures and regulations of the institution and to Graduate School rules and procedures as outlined on the following pages and in the Graduate School Policies and Procedures.

Opportunities for advanced study and research with members of the faculty are offered in the Graduate School. Graduate instruction and research are carried on in most of the regularly organized departments. Programs of study leading to advanced degrees are under the governance of the Graduate Studies Committee.

The faculty involved in graduate education consists of the president of Washington State University, the deans of the various academic units, the chairs of the academic departments and programs in which advanced degree programs are offered, and selected other members of the faculty. Members of the faculty involved in graduate education have the responsibility of offering courses limited to graduate students, guiding graduate seminars, serving as thesis advisors and members of thesis committees, administering Graduate School examinations (master’s, preliminary, and doctoral) and, from time to time, serving as members of the Graduate Studies Committee. Graduate students have opportunities for studying and working in a close professional relationship with these faculty members who have been selected because of their special competence and interest.

Degrees Granted

Doctor of Philosophy

Programs leading to this degree are available in the following fields of study: agricultural economics, American studies, animal sciences, anthropology, biochemistry, biological and agricultural engineering, botany, business administration, chemical engineering, chemistry, civil engineering, communication, computer science, criminal justice, crop science, economics, education, electrical and computer engineering, engineering science, English, entomology, environmental and natural resource sciences, food science, genetics and cell biology, geology, history, horticulture, individual interdisciplinary studies, materials science, mathematics, mechanical engineering, microbiology, molecular plant sciences, neuroscience, nursing, nutrition, pharmacology and toxicology, physics, plant pathology, political science, psychology, sociology, soil science, veterinary science, and zoology.

Master of Arts and Master of Science

The appropriate degree may be earned in most departments. (See the paragraph on degrees under the descriptive material for each department or other unit of the institution.)

Additional Degrees

Courses of study leading to the Doctor of Education and Master of Education degrees are offered in the Department of Educational Leadership and Counseling Psychology and the Department of Teaching and Learning.

A student may undertake a program for the degree of Doctor of Design, Master of Accounting, Master of Architecture, Master of Business Administration,
Master of Engineering and Technology Management, Master of Fine Arts, Master of Health Policy and Administration, Master of Nursing, Master of Public Affairs, Master of Regional Planning, or Master in Teaching.

**Admission**

Graduates of Washington State University and other colleges and universities whose degrees are recognized by this institution and who meet the requirements for graduate admission may be admitted to the Graduate School. For necessary interpretations, inquiries should be directed to the dean of the Graduate School. Prospective graduate students who have established superior academic records and whose degree interests are compatible with the programs offered at Washington State University are invited to apply for admission to the Graduate School.

Students who contemplate entering the Graduate School should apply online from the Graduate School Web site at www.gradschool.wsu.edu. For admission to the Graduate School, Washington State University requires official transcripts from each of the following: (1) colleges or universities from which any degrees have been granted or are expected and those transcripts which show the last 60 graded semester or 90 graded quarter hours of undergraduate work taken; (2) colleges or universities showing graded graduate-level (including doctoral) course work taken after the bachelor's degree. Note: Students intending to request transfer credit for their program of study will need to submit official transcripts from colleges or universities showing such credit. Departments and programs are free to request additional transcripts as deemed appropriate. Official transcripts are those mailed directly to the Graduate School from the registrar of the institution attended. Complete credentials should be on file at least one month before registration. Transcripts from other institutions cannot be returned. Records of previous work at Washington State University need not be submitted.

In general, admission to the Graduate School on regular student status requires at least a B (3.00 on a 4.00 scale) average for the last 60 semester hours of graded undergraduate work. Admission is to be on the basis of graduate study elsewhere, when it has been accomplished in a recognized graduate school with at least a B (3.00) average in 12 or more semester hours of graded graduate work beyond the bachelor's degree. Provisional admission may be granted to those students recommended by a department whose average is below 3.00, provided their total record indicates a high probability of success. Admission of a student from a foreign university may be approved by the dean of the Graduate School if the student presents a superior academic record, furnishes satisfactory evidence of adequate ability in English, and has sufficient financial resources. Such applications should be completed at least six months in advance of the proposed date of enrollment in the Graduate School. International students who have undertaken graduate study in other institutions will be accepted only after evaluation of their undergraduate records, as well as their performance in graduate study, and the minimum criteria, as described above, will apply. Because of limitations within certain departments, it may be necessary to deny admission to some qualified applicants. Students who come to Washington State University before receiving the admission certificate do so at their own risk.

**Transfer of Graduate Credits**

Appropriate credits (with a grade of B or higher) earned in other accredited graduate schools may be applied to a limited extent toward an advanced degree; however, they may not be substituted for residence requirements. Use of WSU credit earned prior to formal admission to the Graduate School is restricted. For necessary interpretations, inquiries should be sent to the dean of the Graduate School.

**Summer Sessions**

Credit earned during summer sessions of Washington State University may be applied in the same manner and subject to the same rules and regulations as credit earned during fall and spring semesters. In a number of departments there are unusually good opportunities for research during the summer months. Summer work in the College of Education is planned especially to meet the needs of teachers and administrators.

**Graduate Work Through Distance Degree Programs**

Credit earned in graduate-level courses taken through the WSU Distance Degree Programs will be accepted on graduate student programs without limit, subject only to customary admission and program approvals. No extension credits from other institutions, or work done by correspondence with this or any other institution, or credit earned by special examination may be used to meet advanced degree requirements.

**Graduate Study by Seniors**

Seniors who have at least a 3.00 grade point average in the last 60 hours of their undergraduate work at Washington State University may register for up to 6 semester hours of work in the Graduate School in excess of the number of hours required to complete the bachelor's degree. Graduate School approval is required at the time of registration. Only grades of B or higher may be applied toward an advanced degree. Work done by an undergraduate under other conditions may not be applied toward an advanced degree.

Seniors who wish to enroll in 500-level courses must obtain approval of the major advisor and the chair of the department or program in which the course is offered.

**Select Graduate Admission Program**

The SGA Program is to encourage outstanding undergraduate students with top academic records to remain at WSU for a graduate degree by (1) extending an early offer of admission and support to outstanding candidates, (2) removing financial and other costs associated with regular application, and (3) potentially reducing the total number of combined semesters required to complete the undergraduate/graduate degree (without reducing the credit requirements for either).

**Registration**

All graduate students must maintain continuous enrollment in the Graduate School, registering for each semester and summer session from the time of first enrollment until all requirements for the degree are completed. Continuous enrollment may be maintained by registering in one of the following categories: 1) full-time enrollment, 2) part-time enrollment, or 3) graduate leave status enrollment.

Students on graduate leave status may discontinue enrollment for credit for a period of 12 months without penalty. After that time, graduate leave status students will be assessed a fee of $25. Students on graduate leave status will be considered by the Graduate School to be in good standing for up to four consecutive years. Graduate leave status enrollees who wish to enroll for credit must give the Graduate School one month notice prior to the enrollment date. Graduate students who fail to maintain continuous enrollment will be dropped from the University. Special Projects or Independent Study (600), Master’s Research, Thesis, and/or Examination (700), Master’s Special Problems, Directed Study, and/or Examination (702), and Doctoral Research, Dissertation, and/or Examination (800) shall have as prerequisite regular or provisional student status in the Graduate School.

**Registration Policy for Graduate Students Completing Degree Requirements**

Graduate students must register for the required amount of 700, 702, or 800 credit during the semester or summer session in which they take their final examinations. Fall and spring semesters and summer session officially end at the time final grades are due in the Registrar's Office. Examinations are not normally scheduled between regular terms. However, students who have received special permission from the Graduate School to schedule final master's or doctoral oral examinations in the interim nonclass period after the end of a term will be required to register for the following semester or summer session.

**Scholarship Standards**

A student must earn a 3.00 grade point average for all course work (including all courses listed on the program and other graduate upper- and lower-division courses). No work of B-grade or less may be dropped from a program, nor can a course be repeated for a higher grade if the final grade is C or higher. Any
course listed on the program in which a grade of C, D, or F is earned must be repeated.

Any graduate student who fails to maintain a cumulative grade point average of 3.00 or higher for all course work subsequent to admission to the Graduate School will be dropped from the University. A student who is dropped may be permitted to re-enroll if a special recommendation is made by the chair of the major department with the concurrence of the dean of the Graduate School.

Requirements for a Graduate Degree

The Graduate School’s graduation requirements necessary for the completion of a graduate degree are those as published in the Graduate School Policies and Procedures Manual in effect at the time of the student’s initial admission as a regular or provisional graduate student. Departmental requirements for graduation are those in effect at the time the student files a program of study.

Subsequent changes in degree requirements of the Graduate School or in departmental requirements may be substituted at the option of the student upon approval by the master’s or doctoral committee, the department chair, and the dean of the Graduate School.

If a student is dropped from the University for failure to maintain continuous enrollment, the graduation requirements of the Graduate School are those in effect at the time of readmission to the Graduate School.

Time Limit

The time limit for the use of graduate credits toward a master’s degree is six years from the beginning date of the earliest course applied toward the degree.

Work for the doctoral degree should be completed within three years of the date of the satisfactory completion of the preliminary examination, and within ten years of the earliest course applied toward the degree. At least four months must elapse between preliminary and final examinations for doctoral degrees.

Assistantships, Fellowships, and Scholarships

Teaching and research assistantships are available in most departments offering advanced degrees, and research fellowships are granted in some departments. For the student Personnel program, staff assistants are appointed each year. The Graduate Catalog and Graduate School Policies and Procedures should be consulted concerning qualifications, eligibility, and application procedures.

Assistantship appointments require part-time service. Students on appointment must maintain regular full-time enrollment in graduate school for the duration of their appointments. Stipends vary according to the amount of required service, the extent of the student’s training, and other factors. Graduate students appointed to assistantships of half-time service or more and who reside in the state of Washington while attending WSU may qualify for some form of tuition waiver. Forms for assistantship or fellowship applications are included as part of the general application for admission to the Graduate School.

As most appointments are made by April 15 for the following academic year, it is desirable to have applications completed as early as possible, but no later than by May 15.

Washington State University subscribes to the following resolution of the Council of Graduate Schools in the United States regarding scholars, fellows, trainees, and graduate assistants:

Acceptance of an offer of financial support (such as a graduate scholarship, fellowship, traineeship, or assistantship) for the next academic year by a prospective or enrolled graduate student completes an agreement that both student and graduate school expect to honor. In that context, conditions affecting such offers and their acceptance must be defined carefully and understood by all parties.

Students are under no obligation to respond to offers of financial support prior to April 15; earlier deadlines for acceptance of such offers violate the intent of this Resolution. In those instances in which a student accepts an offer before April 15, and subsequently desires to withdraw that acceptance, the student may submit in writing a resignation of the appointment at any time through April 15. However, an acceptance given or left in force after April 15 commits the student not to accept another offer without first obtaining a written release from the institution to which a commitment has been made. Similarly, an offer by an institution after April 15 is conditional on presentation by the student of the written release from any previously accepted offer. It is further agreed by the institutions and organization subscribing to the above Resolution that a copy of this Resolution should accompany every scholarship, fellowship, trainees, and assistantship offer.

For information about special scholarships and fellowships, write to the dean of the Graduate School or the chair of the department concerned.

UNIVERSITY HONORS COLLEGE

Libby Walker, Interim Dean
Honors Hall, Room 130
509-335-4505
honors.wsu.edu

The University Honors College at Washington State University is one of the oldest and most well-known honors colleges in the nation. The mission of the Honors College is to offer students of high ability and initiative an enriched, four-year core curriculum that satisfies University graduation requirements for general education. Students in the University Honors College are not required to complete General Education Requirements (GERs) because the Honors curriculum fulfills the graduation requirements.

The Honors curriculum is designed to be compatible with any major. Through small classes taught by experienced and enthusiastic faculty dedicated to scholarship and learning, the Honors College helps students develop a lifelong love of learning, as well as skills in critical thinking, writing, public presentation, information literacy, and cultural competency. By completing an enriched series of small classes, and a thesis, students admitted into the Honors College acquire the broad foundations of liberal learning in the natural and social sciences, the arts and humanities, and cultures of the world. In addition, the Honors College emphasizes study of foreign languages and education abroad as premier vehicles for gaining key competencies for an increasingly globalized society and economy. The Honors College offers a number of advantageous opportunities for education abroad.

Admission to the University Honors College

High school students who have shown outstanding scholastic ability, intellectual achievement, motivation, and extracurricular and community involvement may apply to the Honors College for admission. The Honors College welcomes students from diverse cultural and academic backgrounds who are willing to take risks and want to engage in this special academic opportunity. Students who are currently freshmen (by credits) at Washington State University, and achieve a grade point average of at least 3.5 their first semester, can also apply to join by completing the Honors College application. Transfer and international students may apply to the Honors College. However, we recommend talking with an advisor first to see whether the Honors curriculum is a good fit with the student’s program. For more information on the Honors College, please refer to the departmental section of this catalog and our website.

COLLEGE OF LIBERAL ARTS

Eric Lear, Dean
Thompson Hall, Room 309
509-335-4581
www.libarts.wsu.edu

The college contributes to a liberal education through courses in the arts, communication, humanities, and social sciences for undergraduate students in all colleges at WSU, regardless of major. As a bearer of the tradition of liberal education, the College of Liberal Arts places much importance upon soundly conceived and well-taught courses developed to give a properly balanced presentation of the basic areas of human endeavor. Undergraduate students are assured a nucleus of courses in arts, communication, humanities, and social sciences; knowledge of at least one foreign language; and selection of a concentration from a broad array of major and minor fields. Graduate students are assured of advanced study and research in their selected fields.

The College of Liberal Arts offers programs that prepare students for professions and careers. Graduate as well as undergraduate degrees are offered by most departments.

A number of curricula are offered to give preprofessional training (such as pre-law) to students who will then enter professional schools.

Washington State University’s graduate training program in clinical psychology is accredited by the American Psychological Association. The speech-language pathology and audiology programs are accredited by the State
Board of Education and the American Speech-Language-Hearing Association Educational Standards Board. The Music Program is a full member of the National Association of Schools of Music.

The college, in cooperation with the Department of Teaching and Learning, prepares teachers for all levels of educational work. Students preparing for teaching at the elementary, secondary, and college levels usually complete the course work in their chosen subject-matter field within the College of Liberal Arts. The specific requirements for certification and teaching majors and minors for K-12 teachers are listed under the Department of Teaching and Learning.

Admission

The general requirements for admission to the College of Liberal Arts are the same as those for Washington State University. Some departments have selective admissions criteria requiring demonstration of artistic achievement and/or completion of specific courses with specific grades prior to certification of the respective major.

High school students should include the following subjects as preparation for work in the college: at least four years of English, at least two years of one foreign language, three years of mathematics, two years of science, and three years of social sciences; participation in music, art, speech, and communication is also recommended.

Visit our Web site at libarts.wsu.edu.

Requirements for Graduation

The requirements for graduation include the University requirements for graduation plus additional College of Liberal Arts requirements in the humanities, social sciences, and sciences. See graduation requirements of the catalog.

Departmental units offering degrees and majors include anthropology, comparative ethnic studies, English (includes DTC), fine arts, foreign languages and cultures, history (includes social studies), music, philosophy, political science, psychology, sociology, speech and hearing sciences, theatre arts and drama, and women's studies. Additional degree curricula offered, listed alphabetically in this catalog, include American studies, Asia program, criminal justice, and general studies (classics, humanities, international area studies, liberal arts, linguistics, religious studies, and social sciences).

The Pre-law Advising Center is located in the Department of Political Science. Other pre-law curricula are offered through such departments and programs as communication, comparative ethnic studies, English, history, philosophy, and sociology.

Degrees

The College of Liberal Arts offers programs of study leading to the following degrees:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Department or Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Arts</td>
<td>American Studies, Anthropology, Asian Studies,</td>
</tr>
<tr>
<td></td>
<td>Comparative Ethnic Studies, Criminal Justice, Digital</td>
</tr>
<tr>
<td></td>
<td>Technology and Culture, English, Fine Arts,</td>
</tr>
<tr>
<td></td>
<td>Foreign Languages and Cultures, History, Humanities,</td>
</tr>
<tr>
<td></td>
<td>Leadership and Professional Studies (Spokane), Liberal</td>
</tr>
<tr>
<td></td>
<td>Arts, Music, Philosophy, Political Science, Psychology,</td>
</tr>
<tr>
<td></td>
<td>Public Affairs (Vancouver), Social Sciences, Social</td>
</tr>
<tr>
<td></td>
<td>Studies, Sociology, Speech and Hearing Sciences</td>
</tr>
</tbody>
</table>

Bachelor of Fine Arts
Bachelor of Music
Bachelor of Science
Master of Arts

Master of Fine Arts
Master of Public Affairs
Master of Science
Doctor of Philosophy

COLLEGE OF NURSING/
INTERCOLLEGIATE COLLEGE OF NURSING

Patricia Butterfield, Dean
W. 2917 Ft. George Wright Drive
Spokane, WA 99224-5291
509-324-7337
www.nursing.wsu.edu

The Intercollegiate College of Nursing/WSU College of Nursing in Spokane is a college of nursing shared in common by three institutions of higher education: Eastern Washington University, Washington State University, and Whitworth University.

Instructional programs are conducted at the baccalaureate and master's degree levels to develop responsible citizens and to provide the professional knowledge, skills, and values essential to the practice of nursing society. The undergraduate curriculum includes both liberal arts education and preparation as a generalist in the practice of nursing. The curriculum at the graduate level provides preparation for advanced and specialized nursing practice.

Undergraduate Program

WSU College of Nursing's undergraduate program is approved by the Washington State Nursing Care Quality Assurance Commission, is accredited by the Commission on Collegiate Nursing Education, and is approved by the American Association of Colleges of Nursing. Approximately 700 generic and registered nurse students are enrolled in the baccalaureate nursing program at Spokane, the outreach site in Yakima, the branch campuses in Tri-Cities and Vancouver, and throughout Eastern Washington.

The program is open to students beginning a nursing career and to registered nurses who wish to obtain a baccalaureate degree in nursing. Graduates practice in a variety of settings, including hospitals, community health agencies, schools, long-term care facilities, occupational health programs, home health care, and community mental health centers.

The curriculum for students initiating the study of nursing consists of lower- and 300-400-level components and is four academic years in length. The first two years of the curriculum (lower-division component) are completed on the Pullman campus, one of the consortium schools, or at any institution offering courses equivalent to those taught at Washington State University.

The last two years of the professional curriculum (300-400-level component) are provided at the Intercollegiate College of Nursing building in Spokane, the outreach site in Yakima, and the WSU branch campuses in Tri-Cities and Vancouver.
Admission

All students planning to major in nursing must apply to the Office of Admissions at WSU and be admitted to the University. Requirements may be met at WSU or may be transfer credits from another institution of higher education. Applications to the 300-400-level nursing major in Spokane and Yakima are obtained from the Office of Admissions at WSU. Tri-Cities applicants should contact the Admissions Office on the Tri-Cities campus. Applications must be completed by January 15 for fall admission and August 5 for spring admission.

All registered nurses planning to apply to the nursing major at WSU Tri-Cities or WSU Vancouver must do so through the Admissions Office at the respective sites. Applications are available throughout the year. Students are encouraged to contact an advisor at their campus for lower-division advising. Registered nurse applicants must be graduates of an approved community college or hospital school of nursing and be currently licensed or eligible for licensure to practice in the state of Washington at the time of application. Admission to the 300-400-level nursing major is based upon evaluation of the student’s entire application. Applicants for admission to the college must present at least 60 semester hours or 90 quarter hours of acceptable credit from an accredited college or university. The credits must include those courses which are prerequisite to nursing.

Since the number of applicants to the Intercollegiate College of Nursing/WSU College of Nursing may exceed the number that can be admitted, there is no assurance that all persons meeting the admission criteria will be selected.

Graduate Program

Established in 1983, the Master of Nursing program prepares nurses for leadership in psychiatric/mental health nursing, community-based population-focused nursing, and family nurse practitioner positions. The program is accredited by the National League for Nursing and approved by the American Association of Colleges of Nursing. Degree requirements can be completed in four semesters of full-time study. Individualized programs can be arranged to facilitate part-time study. Applications must be complete by March 15 for fall admission and by November 1 for spring admission.

Professional Development

The Professional Development Program focuses on specific learning needs of registered nurses and other professional health care workers. The technology and resource strengths of the Intercollegiate College of Nursing/WSU College of Nursing are used to provide cost effective opportunities to prepare individuals for professional certification, recertification, and/or relicensure. Contracted partnerships with health care agencies/organizations and with other WSU entities are arranged to design and offer specific professional offerings. For further information, visit www.nursing.wsu.edu.

Degrees

The degrees offered through the Intercollegiate College of Nursing/WSU College of Nursing are as follows:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Science in Nursing</td>
<td>Generalized practice of professional nursing</td>
</tr>
<tr>
<td>Master of Nursing</td>
<td>Community-based population-focused nursing</td>
</tr>
<tr>
<td></td>
<td>Family nurse practitioner</td>
</tr>
<tr>
<td></td>
<td>Psychiatric/mental health nurse practitioner</td>
</tr>
</tbody>
</table>

COLLEGE OF PHARMACY

James P. Kehrer, Dean
Wegner Hall, Room 105
509-335-5901
www.pharmacy.wsu.edu

Admission

The College of Pharmacy offers a course of study leading to a Doctor of Pharmacy (PharmD) degree. The PharmD schedule of studies involves four professional years. The third professional year of the PharmD curriculum is delivered in the Health Sciences building located on the Washington State University Spokane campus. The fourth professional year of the PharmD curriculum consists of advanced experiential training in which students will be assigned to one of the following geographic locations: Spokane, Yakima, Vancouver, Tri-Cities, or Pullman. They will be expected to complete the majority of their rotations in their assigned geographic locations. Students will gain experience in a variety of health care environments, including community, institutional, and long-term care settings. Ninety-four students are enrolled annually in the fall in the first professional year of the PharmD program. Pre-pharmacy requirements are listed under Pharmacy in this catalog.

The application period each academic year is from October 1 to February 1. Although a bachelor's degree is not required for admission, prerequisites for admission require more than two years of pre-pharmacy education. Because the number of applicants to the professional program exceeds the number that can be admitted, no assurance can be given that those who successfully complete the pre-pharmacy requirements will be admitted to the Doctor of Pharmacy program. For additional information regarding the Doctor of Pharmacy curriculum, please see the College of Pharmacy home page at www.pharmacy.wsu.edu, or contact the College of Pharmacy Office of Student Affairs at 509-335-1402.

Degrees

The College of Pharmacy offers the following degree programs:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Science</td>
<td>Pharmacology and Toxicology</td>
</tr>
<tr>
<td>Master of Health Policy and Administration</td>
<td>Health Policy and Administration</td>
</tr>
<tr>
<td>Doctor of Pharmacy</td>
<td>Pharmacy</td>
</tr>
<tr>
<td>Doctor of Philosophy</td>
<td>Pharmacology and Toxicology</td>
</tr>
</tbody>
</table>

COLLEGE OF SCIENCES

Michael D. Griswold, Dean
Morrill Hall, Room 208
509-335-5548
www.sci.wsu.edu

Faculty and curricula within the College of Sciences provide a sound and challenging education for students in disciplines covering the life sciences, physical sciences, environmental science, and mathematics. Both undergraduate and graduate degree programs within the college include classroom instruction, seminars, special projects, and research, which together provide first-rate training to meet the demands of our diverse technological society.

Undergraduate students planning to pursue advanced work in graduate or professional schools are advised to plan curricula to meet admission requirements for advanced study.

One of the major service functions of the college is to provide course work in the sciences and mathematics for students majoring in other disciplines.

Many of the college’s faculty have attained national and international reputations and have received numerous honors and awards. These include National Academy of Science membership, state and national teaching awards, Guggenheim Fellowships, Fulbright Scholarships, national career development awards, National Institutes of Health Merit Awards, and an Eli Lilly Award. Faculty frequently serve on national review panels of granting agencies for instructional and research support and on editorial boards of international journals.
Many undergraduate majors conduct research projects under supervision of a faculty member. This hands-on introduction to the scientific method is facilitated by the high quality of the teaching and research laboratories, computer facilities, and other infrastructure within the college. The Franceschi Imaging and Microscopy Center, Nuclear Magnetic Resonance Center, Geoanalytical Laboratory, Ownbey Herbarium, Conner Zoological Museum, Hudson Biological Reserve, and Meyer’s Point Biological Study Site are all facilities within the college. A strong technical services unit provides instrument shops, electronics construction and repair, graphics, and glassblowing. The college shares support and use of several University-wide facilities such as the Laboratories for Bioanalysis and Biotechnology, and the Environmental Research Center.

Major research areas in the college include biotechnology, shock physics, molecular and atomic interactions on surfaces, continuum mechanics, avian environmental physiology, regulation of cellular growth and differentiation, genetic engineering, cytogenics, photosynthesis, mechanisms of chemical reactions, biological evolution and ecology, environmental remediation, mathematical modeling of biological and physical processes, numerical analysis, reliability and fatigue studies, resource management, protein synthesis and export, repair of DNA, biochemical mechanism of muscle contraction, chemotaxis, coevolution of plants and animals, and reproductive biology.

Admission
Admission requirements for the College of Sciences are the same as those for Washington State University.

High school students should include the following subjects as preparation for work in the College of Sciences: four years of English, at least two years of one foreign language, three (and preferably four) years of mathematics, three (and preferably four) years of science, and three years of social science.

Requirements for Graduation
Graduation requirements for a bachelor’s degree include the University General Education Requirements plus additional College of Sciences requirements in arts and humanities, social sciences, and sciences. Each academic department or program has additional graduation requirements which are included in the departmental descriptions in this catalog.

Degrees
The College of Sciences offers programs of study leading to the following degrees:

**Degree**  
**Bachelor of Science**
- Biochemistry
- Biology
- Biotechnology
- Chemistry
- Environmental Science
- Exercise Physiology and Metabolism (Pullman/Spokane)
- Genetics and Cell Biology
- Geology
- Mathematics
- Microbiology
- Physics
- Sciences—General Studies
  - (includes Basic Medical Science; Biological Sciences; Mathematics; and Physical Sciences)
- Zoology

**Master of Science**
- Biochemistry
- Biology
- Botany
- Chemistry
- Environmental Science
- Genetics and Cell Biology
- Geology
- Mathematics
- Microbiology

Some of the graduate degree programs are jointly supported by the Colleges of Agricultural, Human, and Natural Resource Sciences; Engineering and Architecture; and Veterinary Medicine; thus providing a broad base for graduate training.

**COLLEGE OF VETERINARY MEDICINE**
Warwick Bayly, Dean  
Bustad Hall, Room 110  
509-335-9515  
www.vetmed.wsu.edu

The curriculum of the College of Veterinary Medicine prepares students for positions in many areas of veterinary medicine, e.g., private practice, U.S. Public Health Service, federal and state disease regulatory programs, industry, teaching, research, and military medicine. Fields of study include animal health, disease eradication, comparative pharmacology and toxicology, environmental sciences, laboratory animal medicine, and comparative biomedical studies to help resolve human disease problems.

The professional degree, Doctor of Veterinary Medicine, is recognized by all state and territorial licensing boards, as well as those in foreign countries.

The College of Veterinary Medicine is accredited by the Council of Education of the American Veterinary Medical Association.

Complete information on admission and program requirements may be found in this catalog under departmental listings and on our web site.

Degrees
The College of Veterinary Medicine offers courses of study leading to the following degrees:

- Doctor of Veterinary Medicine
- Bachelor of Science in Veterinary Science
- Bachelor of Science in Neuroscience
- Master of Science in Veterinary Science
- Master of Science in Neuroscience
- Doctor of Philosophy (Neuroscience and Veterinary Science)

**Western Regional Higher Education Compact**

The College of Veterinary Medicine at Washington State University has entered into a regional educational program with the states of Arizona, Hawaii, Montana, New Mexico, Nevada, North Dakota, Utah and Wyoming. Under the terms of this compact, a certified student admitted from one of these states is sponsored financially by the home state and is subject to the same fees as Washington resident students.

Students must apply to their home state for certification in addition to making application to the College of Veterinary Medicine, Washington State University. Additional information regarding regional veterinary education may be obtained from The Executive Director, Western Interstate Commission for Higher Education, 3035 Center Green Dr., Suite 200, Boulder, CO 80301-2204, 303-541-0214, www.wiche.edu.
Regional Program in Veterinary Medical Education

Washington State University has agreed to engage in a regional program in veterinary medicine with the University of Idaho. The regional program involves instruction on the WSU campus and at the Caine Center (UI). Specific quotas of students from Idaho have been established under the terms of this agreement.
Online Education and Regional Campuses

CENTER FOR DISTANCE AND PROFESSIONAL EDUCATION

Muriel Oaks, Dean
106 Van Doren Hall, Pullman, WA 99164-5210
online.wsu.edu

The Center for Distance and Professional Education (CDPE) provides leadership for academic outreach activities at Washington State University through online degree programs and continuing education for professionals. Most programs are delivered entirely online, while others are conducted face-to-face in locations around Washington and nationwide. All reflect the WSU commitment to excellence in both content and support services.

CDPE includes two programming units that have separate responsibilities but shared support services. Distance Degree Programs (DDP) offers degree programs delivered in online formats. Professional Education (PE) provides professional development programs in both face-to-face and online formats.

Certificate programs are available through both units.

Program Strengths—
• The research and academic expertise of Washington State University stand behind the institution’s online programs.
• WSU’s distance and professional programs, faculty, and students have received national awards for innovation and excellence.
• Academic programs and degrees offered through online learning carry credit that is identical to that offered on all WSU campuses.
• The institution’s renowned faculty develop and teach these courses, and significant interaction among students and faculty are built into all online programs.

Opportunities to connect to the WSU community are available to students. These include online student government, events at Learning Centers and in students’ communities, the Alumni Association, and mentoring programs. In addition, on-campus experiences are offered several times each year for students to visit the WSU Pullman campus and interact with faculty, support staff, and fellow students.

Non-credit continuing Education programs also offer students a connection with real world audiences and issues of importance to society. Professional education programs delivered through CDPE showcase the strengths of WSU research and instruction and raise awareness of important societal issues for professional audiences beyond the campus. For all CDPE programs, support services assure that students and professional clients receive the help they need to succeed in their programs.

Distance Degree Programs—Working in partnership with WSU academic departments and colleges, DDP delivers undergraduate online degree completion programs that are an ideal choice for working adults who are seeking a program that offers both flexibility and high quality. Distance degree programs are provided in nine academic areas: social sciences, criminal justice, entrepreneurship, humanities, management and operations, management information systems, human development, women’s studies, and nursing.

Online graduate programs are available in agriculture and in engineering and technology management. A combination of online and on-site delivery options are used to provide graduate and undergraduate programs related to teaching. Additional programs are currently under development.

Staff provide course delivery, admissions and registration, and advising services. Call 800-222-4978 or visit our Web site at online.wsu.edu for more information.

Professional Education—CDPE provides educational programs for professionals in the workplace throughout the state, region, and nation through its Professional Education unit. Programs are offered through a variety of delivery methods such as seminars, conferences, and hands-on workshops. Professional Education also offers certificate programs using technology such as the Internet, satellite, and videoconferencing. Customized programs are created by WSU faculty and outside content experts, in partnership with Professional Education staff, to provide up-to-date knowledge and skills to professionals in business, industry, education, government, non-profit organizations, and trade associations. An experienced and creative staff provides a full range of support services, including marketing and publicity, registration and financial management, and vendor contract negotiation and coordination. WSU students are frequently offered opportunities to attend and participate in these educational programs for working professionals, providing connections to real world experiences to enhance the students’ learning environment at WSU.

Call 800-942-4978 or visit our Web site at professionaleducation.wsu.edu for information about available programs.

Certificate Programs—Certificate programs provide a series of related courses leading to the development of new professional skills. CDPE offers a number of these programs through online and other formats:
• The online Instructional Design Certificate was developed for those interested in gaining skills in design, media development, and assessment.
• The Professional Writing Certificate, delivered entirely online, allows students to develop a base of skills and knowledge for effective communication in the professional worlds they want to enter or have already entered.
• Two online certificates related to telework are available, one for managers and supervisors of teleworkers, and another for the teleworkers themselves.
• Two additional online certificates are offered for those who manage volunteer workers.
• Other customized, non-credit, certificate programs in both online and face-to-face formats are available, and new programs are under development.
WSU Spokane provides graduate and upper-division educational programs in a metropolitan research setting. It combines the high-quality scholarship of a nationally ranked public research university with the unique opportunities provided by its urban setting to create an ideal atmosphere for learning. WSU Spokane's 50-acre Riverpoint campus in the University District is immediately adjacent to the vibrant downtown area and bordered by the Spokane River and Centennial Trail. A new home for the WSU Intercollegiate College of Nursing is under construction and is scheduled to open in January 2009. The developing campus features modern buildings that house state-of-the-art classrooms, design studios, labs, and clinics. Nationally and internationally recognized faculty enrich the student learning experience.

Doctoral studies in design, education, and criminal justice prepare students for leadership roles in their respective fields. Master's degrees are available in architecture, criminal justice, education, engineering and technology management, health policy and administration, interior design, landscape architecture, speech and hearing sciences, and teaching. Course work and internships for student teachers and for experienced educators seeking the superintendent's credential, principal's certification, and a post-master's school psychology certificate also are offered at WSU Spokane. Spokane is the site of the final stages of professional education for all WSU students enrolled in nursing, pharmacy, interior design, and landscape architecture. Students in architecture have the option to student in Spokane during their fourth year.

Baccalaureate completion degree programs are offered in Exercise Physiology and Metabolism, an interdisciplinary degree exploring the interaction between diet and exercise and the role this plays in human health; Leadership and Professional Studies, a degree that combines social and behavioral sciences to build leadership and critical thinking skills; and Speech and Hearing Sciences, with a curriculum that examines normal and disordered communication across the lifespan. Students may also articulate from approved community college programs to complete a baccalaureate degree in interior design.

Students at WSU Spokane range from full-time, traditional students to working adults balancing family responsibilities and community involvement with their studies. More than 1,400 students from across the nation and around the world choose WSU Spokane as their destination. An active student government and a number of student clubs provide leadership and service opportunities.

As a regional medical center, Spokane offers a unique educational environment and access to clinical populations for WSU students and researchers. Internships and clinical placements, as well as research projects with practicing clinicians, are made possible by campus partnerships with the Spokane-area medical community. WSU Spokane's research and service roles are further achieved through numerous programs, institutes, and projects. For example, the Health Research and Education Center (HREC) fosters the development of clinical and applied research in the biomedical and social health arenas.

The Interdisciplinary Design Institute, a unique collaboration among the design disciplines at WSU, advances knowledge to enhance the quality of people's lives in the built and natural environment. The Design Institute approach fosters collaborative learning and offers real-life design project challenges that build students' professional skills while serving the community. Faculty and students at the Design Institute regularly win national and international awards for their work.
Situated on 300 acres along the banks of the Columbia River in Richland, Washington State University Tri-Cities delivers undergraduate and graduate education to approximately 1200 students in the Mid-Columbia Basin and surrounding region. Undergraduate degrees may be earned in business administration, computer science, digital technology and culture, elementary education, English, environmental science, humanities, general science, general physical science, history, horticulture (viticulture and enology), mechanical engineering, nursing, and psychology. The campus works very closely with the region’s community colleges to ensure that students can easily transfer to WSU Tri-Cities and has a number of collaborative degree programs wherein students simultaneously take courses at both WSU Tri-Cities and a community college.

Students may earn graduate degrees in biology, business administration, chemistry, computer science, education (principal & administration, counseling, educational leadership, elementary, secondary, and literacy), electrical engineering, environmental engineering, environmental science, mechanical engineering, and nursing. Doctoral degrees are offered in computer science, electrical engineering, environmental science, and mechanical engineering. Much of the research conducted at Washington State University Tri-Cities responds to the unique needs of the region. The Bioproducts, Sciences and Engineering Laboratory, operated jointly with the Pacific Northwest National Laboratory, conducts world class research in bioproducts, bioenergy and the development of technologies to convert biomass to products and fuels. The WSU Center for Bioproducts and Bioenergy on the Tri-Cities campus provides a joint partnership with the Pacific Northwest National Laboratory, statewide, national and international industry in bioproducts and bioenergy research and education. The Food and Environmental Quality Laboratory and the Washington State Pest Management Resource Service are also located on the campus. This laboratory conducts research to assist farmers, orchardists, and other pesticide users with residue analyses and risk-benefit assessments. The University’s Southeast Regional Extension offices provide a variety of service-based expertise to the citizens of the region. The administrative offices for the United States Transuranium and Uranium Registries are housed on the campus. Cooperative research and internship opportunities are available with the U.S. Department of Energy’s Pacific Northwest National Laboratory and other Hanford Site contractors. The site contractors provide valuable expertise, facilities, and equipment not available at most universities. The WSU Tri-Cities’ library and the Hanford Technical Library are co-located on campus in the Consolidated Information Center, providing greater access to library material for WSU students and faculty and Hanford Site personnel.

Public radio and television programs serve the Mid-Columbia Basin region via KFAE-FM and KTNW-TV. The Yakima Valley/Tri-Cities Mathematics, Engineering, Science Achievement (MESA) program prepares youth in underrepresented groups to pursue education and careers in math, engineering, and science. The Harvest of Hope Gaining Early Awareness and Readiness for Undergraduate Program (GEAR UP) and the One Vision GEAR UP Program help youths and their families understand the importance of higher education and how to prepare for college. Business LINKS provides counseling, training, and mentoring to emerging and expanding businesses. It also coordinates the Business Information Center.
Located on 351 scenic acres about ten miles north of Portland, Oregon, Washington State University Vancouver provides quality education to residents of local southwest Washington and Oregon communities. With a student population of just over 2,500, WSU Vancouver offers a small college atmosphere with public University access. Since its establishment in 1989, WSU Vancouver has graduated more than 6,000 alumni, many of whom currently live and work in the region.

Degree Programs—Sixteen bachelor’s, nine master’s degrees, and one doctorate degree are attainable through freshman, sophomore, junior, senior, and graduate-level courses in more than 35 fields of study. Bachelor’s degrees include anthropology, biology, business administration, computer science, digital technology and culture, education, electrical engineering, English, environmental science, human development, humanities, mechanical engineering, nursing, psychology, public affairs, and social sciences. Within these degree programs, students may concentrate their studies in a variety of areas, from anthropology to women’s studies.

Master’s degrees include business administration (MBA), computer science (MSCS), education (EdM), environmental science (MS), history (MA), mechanical engineering (MSME), nursing (MN), public affairs (MPA), and teaching (MT).

WSU Vancouver also offers a doctorate degree in education (Ed.D.).

The WSU Vancouver University Scholars Program offers alternative coursework to meet General Education Requirements (GERs) through seminars, lecture series, and a senior project. It offers highly motivated and high-achieving students the opportunity for small classes and personalized attention to research projects on campus and in the community.

Campus and Student Life—The campus features seven academic buildings as well as a bookstore, cafeteria, student commons and student services center, study hall areas, sports court, fitness center, art galleries, and a system of biking and pedestrian trails, all framed in a beautiful campus setting between scenic views of Mt. Hood and Mt. St. Helens. Facilities also include computer engineering, multimedia, nursing, psychology, and science laboratories, as well as a library carrying more than 25,000 books, access to more than 100 databases, 9,000 full-text online journals, and extensive Web connections that make the library a personal gateway to worldwide research materials.

Student life centers around a variety of activities, including an active student government and nearly 30 recognized student organizations. In addition, a child development program on campus provides onsite childcare opportunities for students, faculty, and community members with children.

Faculty and Research—More than 120 Ph.D. faculty provide WSU Vancouver with academic expertise spanning a variety of subjects. Faculty are actively involved in research in such areas as global climate change, domestic violence, criminal justice, child psychology, education, public affairs, and genetics, among others. Diverse topics such as artificial intelligence, marine ecology, environmental regulation, workplace behaviors, and computer-aided engineering are taught by professors with expertise in their respective fields. Quality instruction and an emphasis on individual attention also characterize the WSU Vancouver student experience, with a faculty student ratio of approximately 14 to 1.

Community Partnerships—WSU Vancouver’s involvement in the many communities it serves ranges from the extension of its academic programs to the WSU Learning Center in Longview to partnerships with other universities and community colleges.

Some of WSU Vancouver’s community activities include:

The Co-Admission Program: The co-admission program provides an early bridge for students from Clark College in Vancouver and Lower Columbia College in Longview who plan to complete their bachelor’s degree at WSU Vancouver. Co-admission students fill out a single application, have their transcripts automatically transferred from one school to the other at no charge, and take advantage of services at both the community college and WSU Vancouver.

Partnerships for Elementary Science Education: Grants from the National Science Foundation have been instrumental in advancing science education in the region’s elementary schools. WSU faculty serve as science resources for classroom teachers, working to strengthen their understanding of science principles and processes.

The Center for Columbia River History: A cooperative effort between WSU Vancouver, Portland State University, and the Washington State Historical Society, the center focuses on research and public education on the history of the Columbia River Basin.

Solid partnerships with the local business community, health and human services and other public agencies, local school districts, and community foundations enable WSU Vancouver to maintain a vital link to the community and the public it is serving.

WSU Vancouver, University Graduation Requirements

The General Education Program at WSU Vancouver

Introduction to the General Education Program

The WSU Vancouver General Education Program is designed to promote students’ academic learning about specific disciplines as well as to prepare them for the critical and collaborative demands of the 21st century. As students investigate and explore important personal, scientific, and societal questions, their course work is organized around six central learning goals:

1. Critical Thinking
2. Quantitative and Symbolic Reasoning
3. Information Literacy
4. Communication
5. Self in Society
6. Speciality

How the Learning Goals Work for Students

The learning goals work to organize and enhance the overall learning experience at WSU Vancouver. The General Education Program provides opportunities for students in all majors to engage in learning communities that connect to real world problems. Science, social science, arts, and humanities are integrated and linked to a unifying campus theme. Students receive a “big picture” view of the world, learning how vastly different disciplines (such as science and history) relate to each other and to real life.

1. Interdisciplinary Core [V] – The core course(s) introduce students to the culture of learning communities and to the University’s learning goals. The integrated approach is intended to model the connections that students will continue to employ throughout their work in general education and their major, as well as enhance their capacity for life-long learning. Students take two 3-credit classes.

Communication and Information Literacy

Students learn to write, speak, and listen to achieve intended and meaningful understanding. Students also gain foundational skills in using a systematic approach to accessing, evaluating, and using information.

2. Communication [W] – Students address real-world problems and issues through written, verbal, and visual communication. Students take one 3-credit class.

3. E-Portfolio [E] – Students use the disciplinary content of other courses to build the learning outcomes into their educational and employment goals. E-Portfolio courses provide foundational skills and experiences in using a systematic approach to accessing, evaluating, and using information. Each student will create his or her own digital repository for class papers, projects, and recommendations for future use in academic or professional careers. Students must take three 1-credit classes.

Quantitative and Symbolic Reasoning

Students analyze and communicate with mathematical and symbolic concepts. They critically evaluate the quantitative and symbolic information used to represent and draw inferences regarding problems.
4. Quantitative and Symbolic Reasoning [N] – Students use quantitative and symbolic reasoning to address real-world issues. Students take one 3 or 4-credit class.

**Critical Thinking (The Sciences)**

Students engage knowledge in the sciences to practice critical thinking, to examine evidence and context, and to reason ethically and creatively.

5. Sciences [B], [P] – Students build foundations in scientific method, science inquiry, and critical thinking. Minimum 7 credits; students must take one 3-credit [B] course and one 3-credit [P] course. Students must take at least one lab course.

**Critical Thinking (The Social Sciences, Arts, and Humanities)**

Students engage knowledge from the social sciences, arts, and humanities to think critically, to examine evidence and context, and to reason ethically and creatively.

6. Arts and Humanities [H], [G] – 3 credits—Students explore the cultural and social underpinnings of knowledge in the arts and humanities toward participating in the building of inclusive communities.

7. Social Sciences [S], [K] – 3 credits – Students explore the cultural and social underpinnings of knowledge in the social sciences toward participating in the building of inclusive communities.

**Self in Society**

Students explore values, assumptions, and biases from diverse sources, learn to critically assess knowledge, and participate in communities beyond the classroom.

8. World Civilizations [A] – 6 credits (GE 110 and 111) – Students explore how events and patterns in the present and past have structured human societies and interactions with their contexts.

9. Intercultural Studies [I], [G], [K] – 3 credits – Students critically assess their own core values, cultural assumptions, and biases in relation to those held by other individuals, cultures, and societies.

10. American Diversity [D] – Students learn to employ self-understanding and effective interaction with others of diverse cultures, values, perspectives, and realities. The American Diversity requirement will be met by passing a designated [D] course which also meets a GER requirement in another area at the same time.

11. Tier III Community Engagement [T] – 3 credits – Students engage in a culminating experience at the senior level and have an opportunity to work collaboratively and to integrate and apply their learning to community concerns, practicing personal integrity, citizenship, and service to others.

**General Education and Graduation Requirements**

Students are required to earn a minimum of 120 credits, with a grade point average of 2.0 or better. A minimum of 40 credits, with a minimum of 30 credits at WSU, must be taken at the 300-400 level. Other specific requirements are listed above in relation to specific learning outcomes. Students are required to take a minimum of 40 credit hours distributed among the categories below.

- Interdisciplinary Core [V] 6
- Communication [W] 3
- E-Portfolio [E] 3
- Quantitative & Symbolic Reasoning [N] 3
- Sciences [B], [P], [L] 7
- Arts and Humanities [H], [G] 3
- Social Sciences [S], [K] 3
- World Civilizations [A] 6
- Intercultural Studies [I], [G], [K] 3
- American Diversity [D] 3
- Tier III [T] 3
- TOTAL HOURS 40

Students must choose one course that is also designated as an American Diversity [D] course. This requirement adds no credit hours to the General Education Program as American Diversity courses also fulfill the GERs in another area.

**General Rules**

No course designated as a General Education Requirement (GER) can be taken on a pass/fail basis. Courses in or crosslisted with a student's major field may not be used to satisfy General Education Requirements. Please be aware that there are some major-specific exceptions that impact GERs; we recommend you consult your advisor and review your major-specific catalog pages.

**Transfer Students**

Students entering WSU Vancouver fall 2006 or later with a transferable AA degree will have all lower division general education requirements satisfied. These students will be required to take the upper-division Tier III class to complete the University graduation requirements. The University Writing Portfolio and the upper-division Tier III course are not lower-division requirements and therefore cannot be satisfied by the approved AA or AS degrees. Fulfillment of lower-division General Education Requirements will be granted to students who have been awarded the Direct Transfer Associate (DTA) degree from a Washington community college. The Associate of Arts—Oregon Transfer degree (AAOT) from an Oregon community college guarantees completion of the lower-division General Education Requirements, but does not guarantee junior standing or 60 semester credits. Certain approved associate's degrees from Arizona, California, Hawaii, and Idaho may also be considered to have fulfilled the lower division GERs for graduation, but do not guarantee junior status (60 semester credits.) These students will still be responsible for meeting the other requirements for graduation, including those in the college and major department. Please note that other kinds of degrees from community colleges, or degrees from states other than Washington and Oregon, do not automatically fulfill General Education Requirements. For details on specific degrees, consult the Office of Admissions.

**General Education Designation for Incoming WSU Vancouver Students**

All students whose first enrollment at WSU Vancouver will be fall 2006 or after will be required to complete the WSU Vancouver general education program, EXCEPT in the following situations:

1. Co-admit (including institute) students who were co-admitted prior to fall 2006*
2. Students with an approved bachelor's degree from an accredited institution (NO general education requirements)
3. Students transferring in with 27 or more credits will have more flexibility

*Group 1 students would follow the Pullman general education program but will have all lower division general education requirements satisfied. These students will have all lower division general education requirements satisfied. These students will still be responsible for meeting the other requirements for graduation, including those in the college and major department. Please note that other kinds of degrees from community colleges, or degrees from states other than Washington and Oregon, do not automatically fulfill general education requirements.

All credits refer to semester credits.
American Diversity [D]
(Self in Society)
Meets both the [D] requirement and another GER course designation.

Tier III Course [T] 3 cr
(Self in Society)

* Note: Students who transfer to WSU Vancouver with an approved associate’s degree will have all lower-division general education requirements satisfied. These students will be required to complete the upper-division Tier III (Self in Society) requirement.

ADDITIONAL REQUIREMENTS

Residency Requirement:
Minimum 30 semester credits must be completed at WSU.

University Writing Portfolio - Writing Assessment at Mid-Career
Successful completion of the University Writing Portfolio is a requirement for graduation at WSU. Students must satisfy this requirement once they have earned 60 credit hours. To complete the University Writing Portfolio, students must submit three papers they have written as a result of previously assigned college course work and take a timed writing exam consisting of two writing exercises. Upon completion of 60 credit hours, students are given two semester to satisfy the University Writing Portfolio. The Junior Writing Portfolio must be completed before a student enrolls in an [M] course (see below). Visit www.writingportfolio.wsu.edu for more information.

Writing in the Major [M]:
Two courses required for all majors. Consult your major department for details.

Upper-Division Coursework (300-400 level):
Complete minimum 40 semester credits.

Minimum University Graduation Requirements:
120 total semester credit hours, a 2.0 cumulative grade point average, and completion of all college and major requirements.

College of Liberal Arts
College of Sciences
Graduation Requirements
In order to provide a broad-based education in the humanities, social sciences, and sciences, the College of Liberal Arts and the College of Sciences require the following in addition to University Requirements for Graduation. The additional college graduation requirements have already been incorporated in the departmental requirements listed in this catalog.

Arts and Humanities [H][G], Social Sciences [S][K], and Intercultural Studies [I][G][K]—6 credits in addition to the General Education Program requirement.

Sciences [B][P][Q]—2 credits (including a 1-credit laboratory [L]) in addition to the General Education Program requirement.

Foreign Language—One year (two semesters or three quarters) of one foreign language at the University level or two years of one foreign language at the high school level. Demonstrated proficiency by means of a Foreign Language Examination may substitute for actual course work.

Transfer students are responsible for meeting the above College of Liberal Arts and College of Sciences requirements. This includes those students holding the approved Associate of Arts or Associate of Science degree from Washington community colleges or Associate of Arts—Oregon Transfer degree from an Oregon community college.
Summary of Academic Policies

Registration
Instructions for registration and policies and procedures for dropping and adding classes are included in the Schedule of Classes, available at www.registrar.wsu.edu. See Appendix, Rules 47-69.

Class Attendance
Students who have not attended class and laboratory meetings during the first week of the semester may be dropped from the course by the department. (Students should not assume that they have been dropped without verification from the department or Registrar's Office). Students having extenuating circumstances which prevent their attendance during the first week should notify the Office of Student Affairs. Student Affairs will notify instructors of the absence and the reason for it. Valid reasons for missing classes do not relieve the student of making up the work missed. See Appendix, Rules 71-73.

Enrollment Limit
The average semester credit load for undergraduate students is 15 or 16 credit hours. Students are not normally advised to enroll for more than 18 credit hours. When warranted, students may enroll for credits in excess of this limit. Students will not be allowed to enroll for 23 or more hours (10 hours for summer session) without written overload approval from their major department chair or Student Advising and Learning Center advisor. (See Tuition and Fees for additional credit hour charge over 18 hours.)

CougarCard
The CougarCard is the official WSU photo ID card. New students receive their CougarCard during New Student Orientation. The CougarCard is required for library privileges, obtaining and cashing checks, riding Pullman Transit and commuter buses, entry to the Student Recreation Center, access to WSU athletic events with a valid sports pass, and admission to many other University events and activities. Additional uses include Cougar CASH accounts, University dining accounts and access to certain campus buildings and offices.

Credit
Washington State University operates on the semester calendar. Each semester is 15 weeks long, plus one week of final examinations. One semester hour of credit is assigned in the following ratio of component hours per week devoted to the course of study: (1) lecture—one hour of lecture per week for each credit hour; (2) laboratory—three hours of laboratory per week for each credit hour; (3) studio—two hours of studio work per week for each credit hour; (4) ensemble—four hours of ensemble work per week for each credit hour. The proportion of time in each course assigned to lecture, studio, laboratory, or ensemble is recommended by the faculty of the department offering the course. The term “semester hour” corresponds with “credit,” “hour,” or “credit hour” and is abbreviated to “hour” in the description of courses in this catalog. See Appendix, Rules 27-30, 33, 34, 121, 123.

Credit Hour Requirements for Full-time Enrollment
The normal load for an undergraduate student is 15 or 16 credit hours per semester. Twelve credit hours per semester is considered a full load for undergraduate students. Ten credit hours is considered a full load for graduate students. (Six hours in summer session is full time for undergraduates; five hours for graduate students.) Part-time students do not share in certain student body privileges such as participation in recognized activities, WSU Health and Wellness Services, and student publications.

Graduate students on half-time teaching or research assistantships are expected to carry 10-14 credits per semester with no more than 12 hours of graded credit (3-6 in the eight-week summer session). The Graduate School Policies and Procedures Manual explains in detail the requirements for graduate students on appointment or taking examinations.

Tuition and Fees: Based on credit hour enrollment. See “Tuition and Fees” in this catalog.

Financial Aid: For financial aid purposes, full-time enrollment for an undergraduate student is 12 credit hours and half-time enrollment is considered to be 6-11 credit hours. For graduate students, full-time enrollment is 10 credit hours and half-time enrollment is considered to be 5-9 credit hours. Aid programs and policies require a student to be enrolled full-time. Students planning to enroll less than full-time should contact the Financial Aid Office. In order to maintain financial aid eligibility, students must meet Satisfactory Academic Progress (SAP) requirements for credit hour completion and cumulative grade point average (GPA). The complete SAP policy regarding credit hour completion, GPA, and degree completion time frame is available at www.finaid.wsu.edu.

Loan Deferrals: Deferrals on Perkins Loans and Federal Family Education Loans require at least half-time enrollment (6 credit hours) for undergraduate and graduate students. Five credit hours constitute half-time enrollment for a graduate student on a half-time assistantship.

Federal Family Education Loans deferrals, after a break in enrollment, require full-time enrollment (12 credit hours for undergraduates; 10 for graduate students). For this purpose, ten credit hours constitute full-time for a graduate student on half-time assistantship.

Student Government: In order to be qualified for election and tenure as a student member of the ASWSU Senate, a candidate shall be a full-fee-paying student and must be and remain in good academic standing.

Veterans Benefits: For veterans benefits, full-time enrollment for an undergraduate student is 12 hours, three-quarters-time is 9-11 hours, half-time is 6-8 hours, and less than half-time is 5 or fewer hours. For graduate students, full-time enrollment is 8 hours, three-quarters-time is 6 or 7 hours, half-time is 4 or 5 hours and less than half-time is 3 or fewer hours. Generally 7 hours for undergraduates and 4 hours for graduate students is considered full-time during summer session. Detailed information on training time eligibility can be obtained from the WSU Veterans Affairs Office.

International Students Holding F-1 and J-1 Visas: The Immigration and Naturalization Service requires that nonimmigrant F-1 and J-1 students be enrolled in a full course of study for the entire semester. (Twelve semester hours for undergraduate students and 10 semester hours for graduate students per semester excluding summer session is considered full-time.) Additional information on these requirements may be obtained from International Programs/International Students and Scholars, Bryan 108, 509-335-4508.

Auditing
No University credit will be allowed for auditing courses. To visit a class more than three times requires official approval and written permission of the instructor is required. An audit fee is charged for other than regularly enrolled full-fee-paying students. See Appendix, Rules 20, 21.

Cancellation of Enrollment
Students wishing to cancel their enrollment must do so during the first five days of the semester to avoid further financial obligation. Cancellation of enrollment (withdrawal from the University) is initiated through the Registrar's Office. See Appendix, Rule 70.

Classification of Students
Undergraduate students who have completed less than 30 semester credits are classified as freshmen, 30-59 1/2 semester credits as sophomores, 60-89 1/2 semester credits as juniors, and 90 and above as seniors.

Post-baccalaureate students are those who have received the baccalaureate degree but have not been admitted to the Graduate School. Sometimes called post-graduates, these students include those completing requirements for a second baccalaureate degree, those taking courses for personal enrichment, and those working toward teacher certification.

Graduate degree students are those admitted to a graduate program in a degree classification on the basis of a specific application to the Graduate School. See Appendix, Rule 25.
Numbering System of Courses
Lower-division
Courses numbered 100-199 inclusive are normally taken by freshmen.
Courses numbered 200-299 inclusive are normally taken by sophomores.

Upper-division
Courses numbered 300-399 inclusive are normally taken by juniors and seniors.
Courses numbered 400-499 inclusive are normally taken by juniors and seniors. These courses may be included in graduate programs provided they are published in the Graduate Study Bulletin and provided they are not specific requirements in preparation for graduate study.

Graduate
Courses numbered 500-599 inclusive are primarily for graduate students.
Qualified seniors may take these courses for graduate credit during their last year or summer session. Other qualified seniors may take these courses for undergraduate credit with permission of their department chair.
Courses numbered 600-800 have as a prerequisite regular student status in the Graduate School.

Professional
Courses numbered 500-800 and designated with a P following the course number are professional courses.

Computer Literacy
Washington State University offers a wide variety of courses, small group tutorials, instructional mini-seminars, and help sessions for students who feel they need assistance in acquiring computer skills.

Course Prerequisites
When applicable, prerequisites are listed in this catalog with the specific course prefix and number, preceded by the abbreviation: prereq. Prerequisites may be levels of competence, or courses which a student must have completed, or the standing a student must have achieved before enrolling for a specific course. For example, Calculus (Math 171) requires a prereq of Precalculus Algebra (Math 107), meaning that the student may not enroll for Math 171 until successfully completing Math 107. Prereqs may also be as general as two semesters of biology or concurrent enrollment. (See Biol 107.) Concurrent enrollment is indicated by the symbol c/. Prereqs may include a level of expertise or a specified major, e.g., students may not enroll in Spanish 324 without first being fluent in Spanish, or students may not enroll in an advanced seminar before achieving senior standing in the major. Recommended prerequisites are listed as well, preceded by the abbreviation: rec.

Questions concerning prerequisites should be referred to the instructor of the course. Students who have not met all prerequisites may be excluded from the course, or the instructor may waive prerequisites based on demonstrated competence or equivalent academic experience.

Field Trip Guidelines
For classes or other instances in which students are expected to participate in field trips, this expectation should be included in the catalog and/or course syllabus. For classes, the reference to the field trip listed in the course syllabus should include any required fees, how travel would be accomplished, alternatives (if any), and the consequences of not participating in the required field trip.

When travel is required, the responsible faculty or staff member should arrange for the transportation. If classes are to be missed, the responsible faculty or staff member should also provide the student participants with a statement concerning absence from classes that can be given to the students’ instructors. Transportation can be scheduled through the University motor pool in accordance with section 95.35, Business Policies and Procedures Manual. The University’s liability coverage is provided by Chapter 4.92 of the Revised Code of Washington (RCW). In those instances where students are permitted to drive their own cars and other students are permitted to ride with them, the responsible faculty or staff member, acting as the University’s representative, should request the student drivers to verify that:

1. They have valid driver's licenses
2. They have minimum liability insurance required by the state of Washington ($25,000 bodily injury per person, $50,000 per accident, $10,000 property damage)
3. The student drivers’ vehicles meet the state’s standard safety requirements
4. The passenger capacity of the vehicles will not be exceeded

The supervising University representative should also ensure that participants are appropriately dressed and properly advised as to safety requirements for the activity involved.

Certification of a Major
An undergraduate may certify an academic major upon completion of 24 semester hours with the approval of the appropriate department chair and notification to the Student Advising and Learning Center.

A student who has completed 60 semester hours should be certified in a major. The student initiates the certification procedures at the Student Advising and Learning Center (SALC), acquires the signatures of the academic advisor and the department chair, and returns the signed documents to the SALC Office. Certified majors who wish to transfer to another academic major do so by requesting from the Registrar’s Office a change of major card, and obtaining the approval and signature of the department chairs of the former major and the new major.

Students who satisfy the minimum University requirements plus any departmental core requirements with a 2.0 cumulative GPA are qualified for certification except in those departments whose majors are impacted or whose certification requirements are higher. Consult the departmental section of this catalog for specific departmental requirements.

SPECIAL NOTE ON UNDERGRADUATE CERTIFICATION: Since academic departments may establish additional requirements for those seeking admission to specific programs, students are reminded that admission to Washington State University does not ensure acceptance into any department or program as a certified major and degree candidate. Several academic programs, including architecture, business, communication, computer science, construction management, economics, education, engineering, environmental science, fine arts, hospitality business management, interior design, landscape architecture, mathematics, music, neuroscience, nursing, pharmacy, psychology, and sport management are unable to accept all qualified students. In these situations, and others which may arise in the future, the most highly qualified students will be selected up to the enrollment limits in the specific program.

Departments and programs designated as impacted or those units directed to raise certification standards by external or certifying agencies may require more than the minimum 24 hours for certification and a GPA higher than the minimum 2.0. Academic units may also require completion of one or more specific courses prior to certification. Units must include in their certification requirements a mechanism whereby qualified transfer students can be certified upon admission. These requirements for immediate certification may include standards more rigorous than the minimum requirements, but prior enrollment per se at WSU cannot be a condition for certification of transfer students. See Appendix, Rule 53, 55, 56.

Minor, Second Major, or Second Baccalaureate Degree
A student who has completed 60 semester hours and is certified in a major may certify a second major or a minor with the approval of the department concerned. The student should consult with the department concerning hours and grade point requirements and an approved schedule of studies to meet such requirements.

A second major requires completion of departmental requirements for the major, exclusive of General Education Requirements. A minor requires a minimum of 16 semester hours, 9 of which must be in upper-division course work and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Upon completion of the requirements, the department will notify the Registrar's Office, and the minor or second major will be posted on the student's permanent record (transcript).
A student who desires to complete a second baccalaureate degree shall satisfy the second degree program and college requirements and present not less than 150 semester hours of credit. The first bachelor's degree, whether at WSU or at another accredited institution, is understood to fulfill all University requirements for graduation, including the 300-400-level requirements, University Writing Portfolio, the minimum hours for the first degree, as well as the requirements of the General Education Program. See Appendix, Rule 54.1

Certificates

An officially recorded undergraduate certificate is a document issued by WSU, displaying the WSU seal and president's signature. Certificates are issued to students who have completed a course of study that meets the guidelines and has been approved by the Faculty Senate. To have the undergraduate certificate recorded on the official transcript, the student must apply for the certificate through the Registrar's Office and pay the $50 fee.

Grading System

Washington State University uses letter grades and the four-point maximum grading scale. The grade A is the highest possible grade, and grades below D are considered failing. Plus or minus (+) symbols are used to indicate grades that fall above or below the letter grades, but grades of A+ and D- are not used. For purposes of calculating grade points and averages, the plus (+) is equal to .3 and the minus (-) to .7 (e.g., a grade of B+ is equivalent to 3.3, and A- is 3.7). Guidelines for grading may be found in Rule 90, listed in the Appendix.

A—4 grade points per credit hour.
B—3 grade points per credit hour.
C—2 grade points per credit hour.
D—1 grade point per credit hour.
F—no credit; 0 grade points. (Grades attempted are calculated in GPA) Fail.
S (Satisfactory)—No grade points (credit not calculated in GPA). Grade given upon satisfactory completion of courses numbered 499, 600, 700, 702, 800, Special Examinations (Rule 15), and other courses duly authorized for S, F grading by the Faculty Senate. (Courses approved for S, F grading are footnoted in the Time Schedule.) A, S, or F grades only are used for physical education activity courses. Courses approved for S, F grading may also be graded S at midsemester indicating satisfactory progress.
M (Marginal Pass)—No grade points (credit not calculated in GPA). Grade given only by the College of Veterinary Medicine.
P (Passing)—No grade points (credit not calculated in GPA). A satisfactory grade for a course taken under the pass, fail grading option. Instructors will turn in regular letter grades for all students enrolled in courses under the pass, fail option, but grades will appear on the student's permanent record as P (Passing) or F (Failing).
I (Incomplete)—No credit or grade points. The term is used to indicate that a grade has been deferred. It is for students who for reasons beyond their control are unable to complete their work on time. All outstanding incomplete work (including grades of I, X, and blank/no grade) must be completed and posted to the official transcript prior to the conferral of the undergraduate or professional degree. Undergraduates or graduate students who receive an I grade in an undergraduate course (100-499) have up to the end of the ensuing year to complete the course, unless a shorter interval is specified by the instructor. If the incomplete is not made up during the specified time or if the student repeats the course, the I is changed to an F. (See Rule 34.)

Faculty are required to submit an instructor's Incomplete Grade Report (IGR) to the departmental office for every I given. The IGR must specify conditions and requirements for completing the incomplete, as well as any time limitations less than one year.

W (Withdrawal)—No credit or grade points. Used if the student has submitted official notice of withdrawal from the course prior to the end of the 9th week, withdrew in accordance with Rule 69, or withdrew from the University prior to the last day of instruction. For undergraduates who enter WSU in fall 1998 or later, the maximum number of WSU withdrawals is 6, not counting withdrawals that result from the cancellation of enrollment. For undergraduates who enter WSU in the fall 2004 or later, the maximum number of WSU withdrawals is 4, not counting withdrawals that result from the cancellation of enrollment. After the 4th or 6th withdrawal, a student may, in exceptional circumstances, submit a petition through the Registrar's Office for an exception to the withdrawal limit. See Appendix, Rule 68, 69.

X (Grade Withheld)—No credit or grade points. Denotes continuing progress toward completion of special problems, research, thesis, or doctoral dissertation, i.e., 499, 600, 700, 702, 800; X grades are converted to S upon satisfactory completion. All outstanding incomplete work (including grades of I, X, and blank/no grade) must be completed and posted to the official transcript prior to the conferral of the undergraduate or professional degree. An X grade may also be used when no final grade is reported due to instructor's illness or absence. See Appendix, Rule 90, 92, 98-103.

Grade Point Average

The student's grade point average (GPA) is computed by dividing grade points earned by the number of credit hours attempted. Grades P and S do not carry grade points, and the credit hours are not calculated into the GPA. Credits attempted for F grades are calculated into the GPA. Transfer and other nonresident credit is not computed in the Washington State University grade point average.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Grade</th>
<th>Grade points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 301</td>
<td>3</td>
<td>A</td>
<td>12.0</td>
</tr>
<tr>
<td>Bio S 422</td>
<td>3</td>
<td>C-</td>
<td>5.1</td>
</tr>
<tr>
<td>Soc 420</td>
<td>3</td>
<td>B+</td>
<td>9.9</td>
</tr>
<tr>
<td>Mus 491</td>
<td>2</td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>Soc 499</td>
<td>4</td>
<td>S</td>
<td></td>
</tr>
</tbody>
</table>

Credit hours attempted (9) divided into total grade points earned (27) = GPA (3.00) Total hours earned: 15

Note: P and S grades yield no grade points, thus are excluded from the GPA calculation.

Grade Reports

Midsemester grades are issued to freshmen students with fewer than 28 semester hours of credit and to transfer students with less than 90 hours in their first semester at WSU and are made available over the Web. Final grades for all students are available online at myWSU.

Transcripts

An official copy of a student’s academic record at Washington State University that bears the official seal of the University and the signature of the Registrar is referred to as a transcript. The transcript must include all work taken at Washington State University. Requests for transcripts must be accompanied by the student's signature and a form of payment for the per copy fee. Order forms are available on the Web at www.transcript.wsu.edu. Phone orders for transcripts cannot be accepted. For rush service, call 509-335-5330. NOTE: Financial indebtedness to the University will prevent the release of a student's transcript.

Transcripts of secondary or higher education study that have been submitted to WSU as a requisite for admission cannot be returned to the student. Students desiring transcripts from other institutions must order official transcripts directly from the institution at which the work was taken. WSU does not issue or certify copies of transcripts from other institutions. Copies of international transcripts in which WSU possesses the original copy may be requested using the International Transcript Request form, also available online.

Repetition of Courses

Courses completed with a grade of C or above may not be repeated for credit or grade points.

Students may repeat courses in which they have received a grade of C- or below one time at WSU during fall or spring semesters. If a student repeats a course in which an I (incomplete) grade was received, the I grade will be changed to F.

When a student repeats a course and earns another grade, the series of repeats and grades will be retained on the student's official record. However, the last grade only shall be calculated in the cumulative grade point average and contribute to the total number of hours required for graduation.
Summary of Academic Policies

In determining scholarship for graduation honors, the first grade only shall be used. Repeats by correspondence, extension, or in residence at other institutions must be reported orally or in writing to the Registrar's Office. See Appendix, Rule 34.

Courses Approved for Repeat Credit

Some courses have been approved for repeat credit, i.e., the student may enroll in the same course during a subsequent semester and additional credit and grade points will be accumulated. An example of such a course would be Special Topics in which the course content may vary from semester to semester. Courses approved for additional credit, with maximum credit allowable, if any, will be indicated in the catalog, e.g., may be repeated for credit; cumulative maximum 6 hours. See Appendix, Rule 34.

Pass, Fail Grading Options

Pass, fail options are available for undergraduate and graduate students. Specific characteristics of the two options are listed below. During registration, students indicate that they wish to enroll in the course on a pass, fail basis. The advisor's approval is required for undergraduates. Information indicating which students are enrolled on a pass, fail basis will not appear on class lists transmitted to instructors. Instructors turn in regular letter grades for all students, and the Registrar's Office will change all grades of A through D to P for those enrolled pass, fail. The P grades earned by pass, fail enrollees will not be included in computing the GPA; however, F grades earned by pass, fail enrollees will be included in GPA computations. Courses approved for S, F grading (Rule 90) are excluded from the pass, fail option. Courses approved for S, F grading are footnoted in the Time Schedule.

A student may change a pass, fail enrollment to a regular letter-graded enrollment, or vice versa, during the first three weeks of classes. After the third week and through the last day of instruction in a semester (end of the 15th week), a letter-graded enrollment cannot be changed to a pass, fail enrollment.

Undergraduate Pass, Fail Option: A total of six courses may be taken on a pass, fail basis by students initiating and completing work for a baccalaureate degree at Washington State University. No courses designated as meeting General Education Requirements for graduation may be taken pass, fail. No more than two courses may be taken on a pass, fail basis during any given semester. Two courses is the limit for summer session. Students in the College of Veterinary Medicine with advisor approval may enroll for a total of six courses in the professional curriculum on a pass, fail basis, subject to the restrictions listed above. Allowances for transfer students are as follows:

<table>
<thead>
<tr>
<th>Transfer status upon entering WSU</th>
<th>Pass, fail allotment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-44 credits</td>
<td>six courses</td>
</tr>
<tr>
<td>45-59 credits</td>
<td>five courses</td>
</tr>
<tr>
<td>60-74 credits</td>
<td>four courses</td>
</tr>
<tr>
<td>75-89 credits</td>
<td>three courses</td>
</tr>
<tr>
<td>90 and above credits</td>
<td>two courses</td>
</tr>
</tbody>
</table>

Departments and programs may deny their majors permission to take courses on a pass, fail basis in their major field or courses needed to meet departmental requirements.

Departments and programs may refuse to accept courses needed to meet the above requirements if the courses were completed on a pass, fail basis before the student was accepted into the department or program.

Graduate Pass, Fail Option: Class 5 (except those working on a second baccalaureate degree) and Class 6 (graduate) students are eligible to take courses on a pass, fail basis, but such work cannot be in the student's official degree program or used for removal of a specific undergraduate deficiency. Credit hours earned under pass, fail are counted toward assistantship minimum hour requirements. There is no limit on the number of hours a graduate student may take on a pass, fail basis. See Appendix, Rules 50, 90.

Honors

President’s Honor Roll. An undergraduate student will be named to the President's Honor Roll under either of the following conditions:

(a) By achieving a grade point average of 3.75 in at least 9 graded hours in a single term at Washington State University.

(b) By achieving a cumulative grade point average of 3.50 based on at least 15 cumulative hours of graded work at Washington State University.

Graduation Honors. Candidates for baccalaureate degrees who have completed at least 30 hours of graded work (grades in which grade points are awarded) at Washington State University will graduate summa cum laude if the cumulative grade point average for work completed at Washington State University is 3.90 or better, will graduate magna cum laude if cumulative grade point average is 3.7 to 3.89, and will graduate cum laude if the minimum cumulative grade point average is 3.50 but less than 3.70. The appropriate Latin phrase will be printed on the diploma and on the final transcript. Qualified students electing to participate in the Honors College who complete its requirements satisfactorily, regardless of whether they qualify to graduate summa cum laude, magna cum laude, or cum laude, will receive a certificate of completion and a printed notation on the final transcript. Computation of graduation honors will be done prior to the final semester to allow for publication of the appropriate honors in advance of graduation. However, following the student's final semester, the Registrar's Office will recompute the student's GPA including the last semester's work, and only this computation will determine official graduation honors. See Appendix, Rules 133, 137.

Academic Complaint Procedure

Students having complaints about instruction or grading should refer them first to the instructor. If not resolved, then the student may refer the complaint in writing to the chairperson of the department in which the course is offered by the end of the last day of the following semester (excluding summer term). After the chair's decision, the student or the instructor may appeal to the Dean's Office within 20 business days of the chair's decision. The decision of the dean is the final step. The University Ombudsman is available at any stage for advice or assistance in resolving academic complaints. See Appendix, Rule 104.

Academic Deficiency

Washington State University expects students to maintain academic standards of excellence and make satisfactory academic progress toward their degree objectives. Undergraduate students are in good academic standing if both their current WSU semester and cumulative grade point averages are 2.00 or above. Students not meeting the criteria above are considered academically deficient.

An undergraduate student who, the first time has failed to maintain a 2.00 semester or cumulative grade point average, must complete an application and complete an interview through the Student Advising and Learning Center on the Pullman campus, the Distance Degree Program or the designated office on other campuses (Rule 38). An undergraduate student who, at the end of any two semesters has failed to maintain a 2.00 semester or cumulative GPA will be dismissed from the University (Rule 39). For process, see Rule 40. Students who are dismissed from the University are required to remain out of WSU for at least one academic year. Students seeking future reinstatement may apply for reinstatement by applying to a Review Board and must provide, as part of the application for reinstatement, additional documentation that demonstrates improved academic performance at the college level and/or a readiness for academic success at WSU. All academic coursework during the time away from WSU is required to be documented and transcripts submitted. An undergraduate student who has been reinstated will be on academic probation for one semester. The interviewer or a Review Board will determine the specific conditions of academic probation. Students on academic probation who fail to comply with the conditions will be dismissed from the University.

Decertification

The department may decertify a certified major who is academically deficient. The department may also decertify a certified major undergraduate student after two semesters where the student's GPA has fallen below the minimum departmental requirements. See Appendix, Rules 56, 38-43.

Student Rights Regarding Education Records

Federal law requires Washington State University to annually notify students currently in attendance at the University of their rights under the Family Educational Rights and Privacy Act (FERPA). Under FERPA, a student has the right to:

1. Inspect and review his or her education records. "Education records" means those records that are directly related to a student and are maintained by Washington State University or by a party acting for Washington State University.
2. Request the amendment of the student's education records to ensure that they are not inaccurate, misleading, or otherwise in violation of the student's privacy or other rights.

3. Consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent.

4. File with the Department of Education a complaint concerning alleged failures by Washington State University to comply with the requirements of FERPA.

Washington State University may release directory information contained in a student's education records. "Directory information" means information contained in an education record which would not generally be considered harmful or an invasion of privacy if disclosed. Directory information includes name (including any former name); local and permanent addresses and telephone numbers; electronic mail address(es); major and minor fields of study; class; participation in officially recognized activities in sports; weight and height of members of athletic teams; dates of attendance; enrollment status (e.g., undergraduate or graduate, full-time or part-time); degrees, certificates, and awards received, including the President's Honor Roll; and the most recent previous educational institution attended by the student. Students may request that the University not release directory information by filing a request with the Office of Payroll Services or online through my.wsu.edu.

The Washington State University policy on student records can be found in the Washington Administrative Code 504-21. A complete text of this policy is available upon request from the Registrar's Office, 346 French Administration Building.

Application for Graduation

A student who has (a) completed any of the four-year collegiate curricula, and (b) satisfied the University Requirements for Graduation and any additional departmental or college requirements with a minimum 2.00 GPA may become a candidate for the bachelor's degree, depending upon the field of study. NOTE: Financial indebtedness to the University will prevent the release of a student's diploma. The award of a degree is conditioned upon the student's good standing in the University and satisfaction of all University graduation requirements. "Good standing" means the student has resolved any unpaid fees or acts of academic or behavioral misconduct, and complied with all sanctions imposed as a result of the misconduct. The University shall deny the award of a degree if the student is dismissed from the University based on his or her misconduct (See Rule 45 and the Student Conduct Code).

Application for an undergraduate or professional degree should be made at the Registrar's Office near the end of the junior year and at least 60 days prior to the expected graduation date. Students must have 70 credit hours and be certified in their major and option before applying. A graduation application must be on file in the Registrar's Office before a student can graduate. A graduation fee must be paid at the time of application.

Candidates must present a minimum of 120 semester hours of credit for graduation, including a minimum of 40 semester hours of credit in upper-division courses and a minimum of 30 hours earned at WSU for a four-year degree. 500-level courses will count toward the upper-division requirements, but an undergraduate may not be required to enroll in or complete a 500-level course as a requirement for a baccalaureate degree.

A student desiring a second bachelor's degree shall satisfy the second degree program and college requirements and present not less than 150 semester hours of credit to receive the second degree. Credits applied toward a graduate degree may not be used for a baccalaureate degree.

A student who has completed any of the five-year curricula, earned a minimum of 150 semester hours of credit, and met the implied requirements in the paragraphs above may become a candidate for the bachelor's degree in that field of study.

Students are required to do their senior work under the direction of the college in which the degree is to be granted. The degree granted and the schedule of studies for a given curriculum will be found in the material for the college or department concerned.

Students are required to earn a C average or better in all work taken at this institution. Any deficiency on transfer credit must be removed by work taken through Washington State University.

For otherwise qualified students with disabilities, individual course requirements or specific requirements within courses may be waived. Waivers of departmental requirements must be approved by the major department.

Catalog Options and Limitations

The University requirements for graduation as published in the catalog in effect at the time of the student's initial enrollment are those which must be met for completion of an undergraduate degree program. University requirements for graduation include the General Education Requirements. For transfer students, the initial enrollment date shall be that upon which the student entered postsecondary education. Subsequent changes in degree requirements, as published in the catalog or amended by the Faculty Senate, may be substituted at the option of the student.

This policy does not apply to major and specific college requirements. All major program and college requirements (including those in a college which does not have separate departmental requirements) are set at the time the student initially certifies the major. Changes in major requirements after the time of certification may apply to all students, provided they neither require a student to enroll in more than a normal complement of credit hours in any semester nor prolong the time necessary to complete degree requirements. Department and program chairs have authority to waive or provide substitute course work for major requirements.

Undergraduates who will not graduate within the normal minimum degree time frame (four years for four-year baccalaureate programs, five for a five-year, and six for a six-year program) have a total of eight years in four-year programs and ten in five- and six-year programs to complete their degrees under their original catalog listing of University graduation requirements. Those who take longer to complete their degrees must meet the University and General Education requirements for graduation as published in the catalog four years prior to the date of graduation. In addition, if more than four years elapse between certification and graduation, the major and specific college requirements in place four years prior to graduation will apply.

Students who apply for admission prior to fall 2009 and who initiated their post-secondary education prior to fall 1991 (fall 1993 for transfer students) may, if they wish, fulfill the general University requirements for graduation as published in the 1989-91 catalog.

Official name changes in degree titles will go into effect automatically for all students according to the effective date approved by the Faculty Senate. Students currently enrolled and certified in a degree program at the time of a name change will have the privilege of graduating with either the old or the new degree title. The option of selecting the old degree title will originate with the student, and it will be the responsibility of the department, in signing the degree application, to determine whether or not the student is eligible (i.e., when the student certified).

General Catalog

The General Catalog is a comprehensive reference guide for Washington State University students. It is compiled to provide an overview of the programs and courses at the University and the rules that pertain to admissions, registration, tuition, and graduation. A printed version of The General Catalog is published annually in June.

The General Catalog is also published on the web site catalog.wsu.edu. In addition, a catalog is published by the Graduate School on the web site www.gradsch.wsu.edu/future-students/academics/catalog. Most academic departments and colleges maintain their own web pages with additional information.

All announcements in the General Catalog are subject to change without notice and students assume the responsibility of consulting the appropriate academic unit or advisor for more current or specific information.

The Schedule of Classes is published each semester on the web site www.schedules.wsu.edu.asp and gives additional detailed information on courses offered, class hours, and classroom locations, and contains the latest calendar dates, fees, and details on registration.

The Office of the Registrar coordinates the updates and revisions to the printed General Catalog and to the information from the General Catalog that is published on the web site. The Graduate School coordinates the updates.
Statement of Institutional Responsibility

As a general rule, undergraduate students who are certified majors or graduate degree candidates can assume that a degree will be granted if they maintain continuous enrollment and meet all requirements as listed in Academic Regulations, Rules 114-118. However, because of serious reductions in financial support, loss of faculty, or for other significant reasons, the University may from time to time find it necessary to discontinue a degree program. When this occurs, further admission into the degree program will be frozen effective with the official action dropping the degree, and every effort will be made to allow currently enrolled majors and graduate degree candidates to complete their degrees within a reasonable period of time. To facilitate this process, department and program chairs (or the appropriate dean) have the obligation to provide for the individual needs of these students; e.g., (1) students may be encouraged to complete their requirements in similar or related degree tracks; (2) although University Requirements for Graduation and the minimum total hours for the degree may never be waived, the student's major department may waive or substitute departmental degree requirements (approval of the Graduate School required for graduate students); (3) undergraduate students may be allowed to complete remaining requirements at another institution under Rule 114(a); (4) Graduate students may be allowed to take courses or conduct research at another institution when approved by the student's graduate committee and the Graduate School. In all cases, all financial obligations are the responsibility of the individual student involved, except as otherwise noted in this catalog or the Graduates Studies Bulletin.

University Requirements for Graduation

University requirements for the baccalaureate degree have been established by the faculty as an expression of the common degree expectations for all Washington State University graduates. The faculty has established minimum standards in terms of credit hours, grade points, and distribution requirements within the General Education Program. For complete listing of all the rules pertaining to graduation, see the Appendix, Rules 106-137.

1. Hours and grade points—A minimum of 120 semester hours with a grade point average of 2.0 or better.

2. Upper-Division (300-400-level)—A minimum of 40 semester hours

3. The University Writing Portfolio (Mid-Career Assessment)—Successful completion of the University Writing Portfolio is a requirement for graduation at WSU. Students must satisfy this requirement once they have earned 60 credit hours. To complete the University Writing Portfolio students must submit three papers they have written as a result of previously assigned college course work and take a Timed Writing Exam consisting of two writing exercises. Upon completion of 60 credit hours, students are given two semesters to satisfy the University Writing Portfolio. The University Writing Portfolio must be completed before a student enrolls in an [M] course (see below). Visit www.writingportfolio.wsu.edu for more information.

4. Writing in the Major [M]—Two courses identified as writing in the major [M] must be included in course work taken to meet departmental requirements. Consult the requirements in the department in which you intend to major.

5. General Education Program requirements—All students, regardless of major, must fulfill the minimum requirements of WSU’s General Education Program, which are described below, or University Honors College. Vancouver students should refer to the Vancouver campus information. See Appendix, Rules 106-137.

6. The award of a degree is conditioned upon the student's good standing in the University and satisfaction of all University graduation requirements. “Good standing” means the student has resolved any unpaid fees or acts of academic or behavioral misconduct, and complied with all sanctions imposed as a result of the misconduct. The University shall deny the award of a degree if the student is dismissed from the University based on his or her misconduct (See Rule 45 and the Student Conduct Code).
Achieving Academic Success

**Academic Advising**

Academic advising is an educational relationship in which students and advisors are partners in planning academic, personal, and career goals. It fosters intellectual and personal development that leads to academic success and self-directed life-long learning.

Every undergraduate student at WSU is required to meet with their academic advisor prior to registration for the next semester. The Student Advising and Learning Center assigns an academic advisor to every non-certified student. Certified majors are assigned an advisor by their department.

At WSU, the goal of academic advising is to provide advising and mentoring that empowers students to complete their programs of study. Academic advising improves retention, increases student satisfaction, and bolsters academic achievement.

WSU academic advisor responsibilities:
- Be accessible, knowledgeable, informed and demonstrate care and respect.
- Guide students as they define and develop realistic goals.
- Teach students decision-making skills and to assume responsibility to explore their educational plans, options, and achievements.
- Understand and effectively communicate the curriculum, graduation requirements, and university and college policies and procedures.
- Teach and support students with information about and strategies for utilizing the available resources and services on campus and in the community.
- Teach students to understand the purposes and goals of higher education and its effects on their lives and personal goals.

WSU student responsibilities:
- Schedule regular appointments with your advisor (minimum one per semester).
- Clarify your personal values and goals and provide your advisor with accurate and truthful information regarding your interests and abilities.
- Gather all relevant decision-making information and necessary materials (Degree Audit Report - DARS, tentative course selections, forms, etc.) to aid in decision making and to build a schedule free of conflicts.
- Prepare a list of questions or concerns before meeting with your advisor.
- Continue to ask questions until you understand.
- Discuss any problems that affect academic performance, for example: study skills, difficulties in your course work, personal concerns.
- Find out where help is available.
- Know where to access accurate information about educational options, requirements, policies, and procedures.
- Discuss why and how to add or drop courses or to take a course pass-fail or audit.
- Discuss career considerations, changing directions/major/interests.
- Keep a personal record of your progress toward your academic goals. Be proactive in checking the electronic resources (DARS) to keep track of your academic progress.
- Accept responsibility for your decisions and your actions that affect your educational progress and goals.

You are encouraged to take advantage of the skill and knowledge of the advising professionals available to you. The responsibility of making decisions about personal goals and educational plans ultimately rests with you.

**Choosing a Major**

Washington State University has ten colleges that grant degrees. The colleges are divided into various departments that offer majors. A major is a set of courses that introduces you to an academic area of study in depth.

Choosing a major is one of the most important things you do at college. In general, it is best to major in an area that you like, and where you have the ability to do well. If you major in a subject that you like, you will feel more motivated to study. The more you enjoy studying, the better your grades are likely to be, especially if you have some ability in the subject as well. These days, many employers look carefully at grades when they recruit on college campuses, so the higher your grades, the more competitive you may be in the job market.

If you plan to pursue a graduate degree, you will want your undergraduate grades to represent the best work you are capable of doing.

Besides your advisor, Career Services can help you to choose a major, either through individual counseling, through courses such as College Majors and Career Choice (Univ 100/101), or through the resources at the center.

**University Certification Requirements**

Entering students may identify an area of interest. You will be assigned an advisor in your major interest area by the Student Advising and Learning Center. This advisor can be changed if your original interest should change. If you choose not to specify a major interest area, you will be assigned to a general advisor.

An undergraduate may certify an academic major upon completion of 24 semester hours with a 2.0 or better cumulative GPA, with the approval of the department chair and notification to the Student Advising and Learning Center. Please note that some departments have additional certification requirements and may require a higher minimum cumulative GPA than 2.0 and require specific courses. Consult the departmental section of the catalog for specific departmental requirements. Also note that admission to Washington State University does not ensure acceptance into any department or program.

Some students choose to complete a minor or second major to enhance their degree program. Formal certification of a minor or second major is completed after you have finished 60 semester hours. Approved minors are identified in the departmental section of this catalog. Consult with your advisor or the department concerned.

**How is a major related to a career?**

Today's workplace is changing rapidly. Twenty years from now, you may find yourself working in a field that has not yet been invented! In fact, most adults change careers several times over the course of their working lives. A well-chosen major will prepare you to do well in many occupations, because it will give you the problem-solving, critical thinking, and communication skills you will need to succeed. Some jobs require specific college majors; others do not.

Nevertheless, the courses you will complete for your degree will give you skills and knowledge to last a lifetime, no matter how much the workplace may change. As you complete the General Education Requirements and major courses, you will learn skills that apply to any career:
- Communication skills: how to read, write, speak, and listen effectively.
- Analytical reasoning skills: how to break problems down into their component parts and find solutions.
- Cross-cultural skills: how to assess information about other cultures from a critical and comparative perspective.
- Research skills: how to use the scientific method to explore change and development in the natural world.
- Ethical skills: how to discuss questions of value.
- Aesthetic understanding: how to appreciate works of art.

Your academic advisor will work with you to construct an academic program tailored to your needs and interests.

**Take a good look at what's out there**

The Career Development Program in Career Services has many resources and programs to teach students the life-long skills of career planning. A staff of experienced counselors is available to help with academic major and career decisions. They can help you to examine values, interests, and abilities, locate current career information, and identify the various influences that affect decision making. Vocational testing can also be arranged. The center also provides information about internships and student employment opportunities which will enhance your academic major.

Use this catalog and other resources to identify departments that offer courses that sound interesting to you. Select your GER courses based on an informed decision. Consult with various departments regarding what they have to offer you to meet your interests and abilities. You may also access departmental information through the WSU homepage at www.wsu.edu. Finally, work carefully with your advisor as you select courses each semester to measure your progress toward the degree you plan to earn. Use the resources available to you.
Undergraduate Degrees, Majors, and Options

The following are the undergraduate degrees offered at Washington State University. Following the degree, majors are listed in bullets, and any options offered within the major are noted in parenthesis. Degrees that are offered exclusively at one of the regional campuses, Spokane, Tri-Cities, Vancouver, or through the Distance Degree Programs are noted.

College of Agricultural, Human, and Natural Resource Sciences

Agribusiness Economics and Management, Bachelor of Science
- Agribusiness Economics and Management

Agricultural and Food Systems, Bachelor of Science
- Agricultural Business and Technology Systems (options: Agri-Food Production Management, Agri-Food Business Management, Communications, and Technology)
- Agricultural Education
- Organic Agriculture Systems
- Pest Management Systems

Agricultural Economics and Management, Bachelor of Science
- Agricultural Economics and Management

Animal Sciences, Bachelor of Science
- Animal Sciences (options: Industry, Production Management, Science/Pre-Veterinary Medicine)

Apparel, Merchandising, and Textiles, Bachelor of Arts
- Apparel, Merchandising, and Textiles (options: Apparel Design, and Merchandising)

Crop Science, Bachelor of Science

Economics, Bachelor of Arts
- Economics (options: Economics, and Business Economics)

Environmental and Resource Economics and Management, Bachelor of Science
- Environmental and Resource Economics and Management

Food Science and Human Nutrition, Bachelor of Science
- Food Science and Human Nutrition (options: Food Science, General and Coordinated Dietsetics, Nutritional Science)

Horticulture, Bachelor of Science
- Horticulture (options: Environmental Horticulture, Fruits and Vegetables, and Viticulture and Enology)

Human Development, Bachelor of Arts
- Human Development (options: General, Family and Consumer Science, and Preschool through 3rd Grade Certification)

Interior Design, Bachelor of Arts
- Interior Design

Landscape Architecture, 5-year Bachelor of Landscape Architecture
- Landscape Architecture

Natural Resource Sciences, Bachelor of Science
- Forestry (options: Forest Management, and Directed Studies)
- Natural Resources
- Wildlife Ecology (options: Pre-Veterinary, and Directed Studies)

Soil Science, Bachelor of Science
- Soil Science (options: Environmental Soil Science, Precision Farming, Soil Management, and Sustainable Agriculture)

College of Business

Business Administration, Bachelor of Arts
- Accounting
- Accounting and Information Systems
- Business Administration (Vancouver, Tri-Cities, and DDP)
- Entrepreneurship
- Finance
- International Business
- Management Information Systems
- Management and Operations
- Marketing

Hospitality Business Management, Bachelor of Arts
- Hospitality Business Management

College of Communication

Communication, Bachelor of Arts
- Communication (options: Advertising, Applied Intercultural, Broadcast Management, Broadcast News, Broadcast Production, Communication Studies, General Communication, Journalism, Organizational, Public Relations)

College of Education

Education, Bachelor of Arts
- Elementary Education
- Specific Subject Secondary Teacher Certificate (primary majors – biology; Chinese language and culture; English; French; German; history; mathematics; music education; physics; social studies; and Spanish)

Kinesiology, Bachelor of Science
- Athletic Training
- Health and Fitness
- Movement Studies

Sport Management, Bachelor of Arts
- Sport Management

College of Engineering and Architecture

Architectural Studies, Bachelor of Science
- Architectural Studies

Bioengineering, Bachelor of Science
- Bioengineering

Chemical Engineering, Bachelor of Science
- Chemical Engineering (options: General, and Pre-Med)

Civil Engineering, Bachelor of Science
- Civil Engineering (options: General, and Environmental Engineering)

Construction Management, Bachelor of Science
- Construction Management

Computer Engineering, Bachelor of Science
- Computer Engineering

Computer Science, Bachelor of Arts
- Computer Science (BA)

Computer Science, Bachelor of Science
- Computer Science (BS)

Electrical Engineering, Bachelor of Science
- Electrical Engineering

Materials Science and Engineering, Bachelor of Science
- Materials Science and Engineering

Mechanical Engineering, Bachelor of Science
- Mechanical Engineering

College of Liberal Arts

American Studies, Bachelor of Arts
- American Studies

Anthropology, Bachelor of Arts
- Anthropology

Asian Studies, Bachelor of Arts
- Asian Studies

Comparative Ethnic Studies, Bachelor of Arts
- Comparative Ethnic Studies

Criminal Justice, Bachelor of Arts
- Criminal Justice

Digital Technology and Culture, Bachelor of Arts
- Digital Technology and Culture

English, Bachelor of Arts
- English (options: Literary Studies, Rhetoric and Professional Writing, Creative Writing, and Teaching)

Fine Arts, Bachelor of Arts
- Fine Arts (BA) (options: Art History, and General Fine Arts)

Fine Arts, Bachelor of Fine Arts
- Fine Arts (BFA)

Foreign Languages and Cultures, Bachelor of Arts
- Chinese Language and Culture (options: General, and Teaching)
- French (options: General, and Teaching)
German (options: General, and Teaching)
• Spanish (options: General, and Teaching)
History, Bachelor of Arts
• History (options: General, Pre-Law, and Teaching)
Humanities, Bachelor of Arts
• Humanities (options: Classical Studies, International Area Studies, Linguistics, Religious Studies)
Leadership and Professional Studies, Bachelor of Arts (Spokane)
• Leadership and Professional Studies
Liberal Arts, Bachelor of Liberal Arts
• General Studies, Liberal Arts
Music, Bachelor of Arts
• Music (BA)
Music, Bachelor of Music
• Music (BMus) (options: Business, Electrical Engineering and Computer Science, Theatre, Composition, Music Education, and Performance)
Philosophy, Bachelor of Arts
• Philosophy (options: Traditional, and Pre-Law)
Political Science, Bachelor of Arts
• Political Science (options: General, Pre-Law, and Global Politics)
Psychology, Bachelor of Arts
• Psychology (BA)
Psychology, Bachelor of Science
• Psychology (BS)
Public Affairs, Bachelor of Arts (Vancouver)
• Public Affairs
Social Sciences, Bachelor of Arts
• Social Sciences (options: Plan A, and Plan B)
Social Studies, Bachelor of Arts
• Social Studies
Sociology, Bachelor of Arts
• Sociology
Speech and Hearing Sciences, Bachelor of Arts
• Speech and Hearing Sciences
Theatre Arts and Drama, Bachelor of Arts
• Theatre
Women's Studies, Bachelor of Arts
• Women's Studies
College of Nursing
Nursing, Bachelor of Science
• Nursing (Junior and Senior years are at ICN in Spokane or Yakima)
College of Pharmacy
Doctor of Pharmacy
• Pharmacy - (Six year program only)
College of Sciences
Biochemistry, Bachelor of Science
• Biochemistry (options: Biochemistry/Biophysics, and Biochemistry/Molecular Biology)
Biology, Bachelor of Science
• Biology (options: General, Botany, Ecology and Evolutionary Biology, Entomology, and Physical Therapy/Pre-Occupational Therapy/Pre-Physician's Assistant, and Teaching)
Biotechnology, Bachelor of Science
• Biotechnology
Chemistry, Bachelor of Science
• Chemistry (options: General, Environmental, Materials, and Teaching)
Environmental Science, Bachelor of Science
• Environmental Science
Exercise Physiology and Metabolism, Bachelor of Science (Pullman/Spokane)
• Exercise Physiology and Metabolism
Genetics and Cell Biology, Bachelor of Science
• Genetics and Cell Biology
Geology, Bachelor of Science
• Geology
Mathematics, Bachelor of Science
• Mathematics
Microbiology, Bachelor of Science
• Microbiology (options: General, and Medical Technology)
• Physics, Bachelor of Science
Science, Bachelor of Science
• General Studies, Science (options: Basic Medical, Biological, Mathematical, and Physical)
Zoology, Bachelor of Science
• Zoology (options: General, Pre-Medicine/Pre-Dentistry, and Pre-Veterinary/Animal Care)

College of Veterinary Medicine
Neuroscience, Bachelor of Science
• Neuroscience (options: Neuroscience, Computational Neuroscience, Pre-Med/PreDent, Pre-Veterinary)
Doctor of Veterinary Medicine (DVM)
• Undergraduate majors that prepare for the DVM include, but are not limited to: Animal Science, Biology, Biochemistry, Biosystems Engineering, Genetics and Cell Biology, Neuroscience, Microbiology, or Zoology.

Undergraduate Minors
The following are the undergraduate minors offered at Washington State University. The department offering the minor is noted. Minors that are offered exclusively at one of the regional campuses are noted.
A minor requires a minimum of 16 semester hours, 9 of which must be in upper-division course work and taken in taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Upon completion of the requirements, the department will notify the Registrar's Office, and the minor will be posted on the student's permanent record (transcript).

Minor
Accounting
• Accounting
Addiction Studies (Vancouver only)
• Aerospace
Aging
• Agribusiness
Agricultural Economics and Management
• American Indian Studies
American Studies
• Animal Sciences
Anthropology
• Architectural Studies
Art
• Art History
Asian Studies
• Astronomy
Biochemistry
• Biology
Business Administration
• Chemistry
Chinese
• Communication
Community Studies
• Comparative Ethnic Studies
Computer Engineering
• Computer Science
Construction Management
• Criminal Justice
Crop Science
• Digital Technology and Culture
Disability Studies
• Early Childhood Education
Economics
• Electrical Engineering

Department
Accounting
• Accounting
Psychology
• Aerospace Studies
Human Development
• Economic Sciences
Economic Sciences
General Studies, Liberal Arts
• American Studies
Animal Sciences
• Anthropology
Architecture and Construction Management
• Art
Fine Arts
• Fine Arts
Asia
• Physics
Molecular Biosciences
• Biological Sciences
Management and Operations
Chemistry
• Foreign Languages and Cultures
Communication
• Community and Rural Sociology
Comparative Ethnic Studies
• Electrical Engineering and Computer Science
Electrical Engineering and Computer Science
• Architecture and Construction Management
Criminal Justice
• Criminal Justice
Crop and Soil Sciences
• Digital Technology and Culture
Speech and Hearing Sciences
• Human Development
Economic Sciences
• Electrical Engineering and Computer Science

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Undergraduate Certificates

The following are the official certificates offered at Washington State University. The department offering the certificate is noted. Certificates that are offered exclusively at one of the regional campuses are noted.

An officially recorded undergraduate certificate is a document issued by WSU, displaying the WSU seal and president's signature. Certificates are issued to students who have completed a course of study that meets the guidelines and has been approved by the Faculty Senate. To have the undergraduate certificate recorded on the official transcript, the student must apply for the certificate through the Registrar's Office and pay the $50 fee.

A certificate requires and minimum of 15 credit hours with the exact number specified by the department or Program offering the certificate. The minimum GPA to earn a certificate, is a 2.0.

Certificate

Department

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<th>Certificate</th>
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<td>Family Studies</td>
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<td>Global Competencies</td>
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<td>Helping Skills</td>
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<td>Organic Agriculture</td>
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<tr>
<td>Professional Writing</td>
<td>Biology/Mathematics</td>
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<tr>
<td>Quantitative Biology</td>
<td>Crops and Soils Sciences</td>
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<tr>
<td>Sustainable Small Acreage Farming and Ranching</td>
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<tr>
<td>Teaching English as a Foreign Language</td>
<td>English</td>
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</tbody>
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Learning Enrichment Opportunities

Several departments at Washington State University work closely together to offer support to students as they develop their research and writing abilities—key components of a WSU education. From the freshman to the senior year, students may take advantage of all or part of these learning enrichment courses and services, which include:

Freshman Focus – Freshman Focus is the residential living/learning community program in which first-semester students are co-enrolled in two General Education courses with other freshman students who live in the same residence hall. Students form classroom connections, instant study groups, and social networks. Freshman Focus makes the transition to college life easier because there is a solid academic focus that is enhanced by interaction with faculty and residence hall peers. Contact: Office of Undergraduate Education, CUE 305, 509-335-5488.

The Pathways to Academic Success Seminar (PASS) – PASS is a small, interactive learning community facilitated by graduate level peers. Students are co-enrolled in a seminar linked to a course which fulfills a general education requirement. Students who enroll in the two-credit Pathways to Academic Success Seminar, GenEd 104, participate in discussion, activities and projects that introduce them to research, writing, and critical thinking thereby assisting in the preparation for and transition to university life and academic expectations. Faculty from the shared GE course and instructional librarian help assist students one-on-one with their seminar projects. Contact: Student Advising and Learning Center, Lighty Building Room 260, 509-335-6000, pass.wsu.edu.

Writing Tutorial – Engl 102, a one-credit course, offers students an opportunity to improve their ability to write in a student-centered group tutorial setting. The tutorial is usually connected to freshman writing courses. Contact: WSU Writing Center, Center for Undergraduate Education, Room 403, 509-335-3628.

Accessing Information for Research – With sophomore standing and above, students may enroll in GenEd 300, a one-credit course intended to assist them in exploring the technological resources available for conducting academic research. Transfer students who may not be familiar with the resources of the research library are also encouraged to enroll. Contact: Library Instruction Office, Holland Terrell Library, 509-335-7735.
Advanced Writing Tutorial – GenEd 302 can be taken concurrently with an M course or upper-division writing intensive course in the student’s major. This advanced course also employs a small-group, student-centered approach focusing on students’ discipline-specific needs. Grammar in Context-English 202 can be taken concurrently with an M course or upper-division writing intensive course. This course also employs a small-group, student-centered approach focusing on supporting issues of grammar and syntax as students are writing assignments for various courses. This tutorial is open to multilingual and native speakers of English. Contact: WSU Writing Center, Center for Undergraduate Education, Room 403, 509-335-3628.

Service Learning – Students in academic courses across the curriculum are provided with opportunities to learn through engagement in community-based service. Service learning experiences such as child and youth mentoring and environmental restoration inform classroom learning, enhance civic awareness, promote personal growth, and foster skill development. Contact: Center for Civic Engagement, 509-335-7708, cce@wsu.edu, /cce.wsu.edu.

Learning Assistance
The Student Advising and Learning Center (SALC) provides learning assistance programs for all WSU students.

College Success Workshops – College Success Workshops are scheduled throughout each semester and are open to all WSU students. These workshops focus on academic topics such as tips for test-taking, note-taking, and learning skills for science. Other topics include stress and time management, deciding on a major, and making the most of academic advising. The skills needed to succeed in high school are much different than those needed to succeed in college. You may benefit from the more in-depth look at the tips and strategies covered in these workshops. There are also on-line tools designed to get you organized and ready for the challenges you may be facing academically. We encourage you to browse through the Learning Assistance website www.salc.wsu.edu/Learning and familiarize yourself with the variety of services available to help you.

Supplemental Instruction (SI) – The objectives of SI are to: increase student skills in comprehension, analysis, critical thinking, and problem solving, integrate review of course content with study skills and learning strategies, model collaborative learning, reduce drop rate in high-risk courses, increase re-enrollment and persistence by participating students. SI sessions are usually 50 minutes long and held at least twice a week throughout the semester. Many SI leaders also hold extra sessions before exams. Student attendance at all sessions is free and voluntary. The SI leader’s primary goal is to connect course content with study skills. In SI, students connect what-to-learn with how-to-learn.

Tutoring – Tutoring should be sought immediately when additional help is needed or anytime any grade is lower than desired. The goal of tutoring is to provide assistance that enables you to develop academic mastery and independence. During tutorial appointments, you can get help on your homework, help with understanding the concepts necessary to pass your exams, and useful study techniques. Tutoring helps you master course information by providing alternate explanations, techniques and examples. Tutors cannot substitute for attending class. Students who have taken advantage of tutoring have found that their grades improved. Tutoring should be in addition to the help that you can get from your professors’ and TAs’ office hours. If you don’t find what you are looking for on our site www.salc.wsu.edu/Learning, please contact us at 335-6000. One of our trained academic advisors can assist you in locating academic resources aimed at improving your academic success.

The Peer Tutorial Program provides one-on-one assistance or small group tutoring in a wide range of subjects for an hourly fee. Students must meet with their tutors at least once a week for an hour in order to ensure that tutoring is not seen as a “rescue mission” approach to education.

SALC tutors are trained to meet the requirements of the College Reading and Learning Association’s International Tutor Program Certification. New to the WSU menu of tutoring services is eTutoring.org, an online tutoring resource for popular subjects such as Math, Accounting and writing. The tutoring website www.salc.wsu.edu/learning/tutoring also hosts a list of all free drop-in tutoring services available throughout the university. Contact: Student Advising and Learning Center, Lighty Building, Room 260, 509-335-9603.

Other Learning Assistance Programs
Student Support Services Program (SSS) – SSS is a federally funded TRIO program that serves first-generation, low-income, and/or disabled students. Services include: Academic/financial advising, workshops, counseling, tutoring, mentoring, skills training, scholarship opportunities, cultural enrichment activities, technical support, and referrals. Interested students should contact SSS in the Student Advising and Learning Center, Lighty Building, Room 260, 509-335-7324, www.sssp.wsu.edu.

The College Assistance Migrant Program (CAMP) – The College Assistance Migrant Program (CAMP) is a federally funded program that provides services to eligible students from migrant and seasonal farmworker backgrounds. We offer services such as recruitment to WSU and provide a structured first year experience which entails academic support services and personal counseling to enhance the retention and graduation rates for CAMP participants. Academic, personal, and financial services include: financial aid stipends at $1,500; academic, career, and personal counseling; free tutoring; academic workshops and seminars; and referral services. For more information, visit us at camp.wsu.edu.

Washington Achievers Scholars/Governor’s Scholars – Washington Achievers Scholars and Governor’s Scholars are low-income, and often first generation students who receive a scholarship from the College Success Foundation. Achievers and Governor’s scholars are supported on campus with faculty/staff mentors, academic success workshops, counseling, tutoring, advising, referral services and social events. Contact the College Mentor Coordinator in the Student Advising and Learning Center, Lighty 260, www.salc.wsu.edu, 335-8065.
Writing Proficiency Requirements

WSU faculty, administration, and regents have identified writing proficiency as a priority at WSU. Accordingly, all students will satisfy specified requirements to meet WSU’s writing proficiency standards for graduation. The requirements are outlined below:

1. Writing Experience within General Education
   a. All students must satisfy the Communication Proficiency requirement by passing 6 hours of written and oral communication courses, including at least 3 in written communication [W] at Tier I, and 3 of either [W] or [C] at Tier II.
   b. Prior to enrollment in freshman writing courses, all students must take a Writing Placement Examination for the purpose of placement in appropriate writing courses. These placements are mandatory. The Writing Placement Examination is administered during summer New Student Orientation, at the beginning of fall semester, and prior to spring registration. Examination results will place students in the core writing course, Engl 101, Introductory Writing (or Engl 198), or in Engl 101 plus one hour of Engl 102, Writing Tutorial. Students whose first language is not English may be placed in Engl 105, Composition for ESL Students, or Engl 104, Intermediate Grammar and Basic Skills ESL. In some instances, students may be exempted from Engl 101 on the basis of their performance in the Placement Examination. For more information, contact the Writing Assessment Office in CUE 305, or call 509-335-7959 or visit us at www.writingprogram.wsu.edu.
   c. All Honors College students are required to take the Honors College Writing Diagnostic for placement into Honors 298—Honors Writing and Research. The Honors College Writing Diagnostic is offered during the first and third sessions of Alive!, during a session scheduled during the Week of Welcome in conjunction with the Honors College Orientation, and in conjunction with spring semester priority registration. All students who have been admitted to WSU’s Honors College must take the Honors College Writing Diagnostic unless they have credit for a 200-level composition course from another college or university. An AP score of 4 or higher in English composition does NOT fulfill this requirement. For more information, contact the Writing Assessment Office in CUE 305, or call 509-335-7959 or visit us at www.writingprogram.wsu.edu.
   d. General Education courses require student writing of various kinds, both formal and informal, in order to provide adequate instruction in writing skills and to provide a wide range of student experiences in writing for many purposes and audiences.

2. The University Writing Portfolio—Writing Assessment at Mid-Career
   Successful completion of the University Writing Portfolio is a requirement for graduation at WSU. Students must satisfy this requirement once they have earned 60 credit hours. To complete the University Writing Portfolio, students must submit three papers they have written as a result of previously assigned college course work and take a timed writing exam consisting of two writing exercises. Upon completion of 60 credit hours, students are given two semesters to satisfy the Junior Writing Portfolio. The University Writing Portfolio must be completed before a student enrolls in an [M] course (see below). Visit www.writingportfolio.wsu.edu for more information.

3. Writing in the Major [M]
   Two courses identified as writing in the major [M] must be included in course work taken to meet departmental requirements. Consult the requirements in the department in which you intend to major. Students must complete the University Writing Portfolio before enrolling in an [M] course.
   Transfer students who have completed an approved Associate of Arts (AA) or Associate of Science (AS) degree at a Washington or Oregon community college are considered to have fulfilled the lower-division General Education Requirements. These students will still be responsible for meeting the other requirements for graduation, including those in the college and major departments. The University Writing Portfolio and the upper-division capstone course are not lower-division requirements and therefore cannot be satisfied by the approved associate degrees.
University Graduation Requirements

(Note: Students attending Washington State University Vancouver should refer to the Vancouver Campus section of this catalog for information on general education requirements. See catalog.wsu.edu/Catalog/Content/VancouverCampus.pdf).

IMPORTANT: Students with initial postsecondary enrollment prior to fall 1993 should consult with the Registrar's Office. University Honors College students do not complete GERs. Contact the Honors College for additional information.

General Education Requirements

Communication Proficiency [W] [C]
At least 3 must be Written [W]

- Engl 101 or 105 3 cr
- choose one 3 cr

World Civilization [A]

- GenEd 110 3 cr
- GenEd 111 3 cr

Mathematics Proficiency [N]

- choose one 3 or 4 cr

Arts and Humanities [H][G]

- choose one 3 cr

Social Sciences [S][K]

- choose one 3 cr

Additional 6 semester credits of [H,G,I,S,K]

For a total of 18 semester credits in [H][G][I][S][K] courses.

- choose one [H,G,I,S,K] 3 cr
- choose one [H,G,I,S,K] 3 cr

American Diversity [D]
(For students with Initial Postsecondary Enrollment beginning Fall Semester 2000.)
Meets both the [D] requirement and another GER course designation.

- choose one

Additional graduation requirements

COLLEGE OF SCIENCES
COLLEGE OF LIBERAL ARTS

All students, including community college transfer students with an approved transferable AA degree from Washington, Oregon, Idaho, California, Arizona, or Hawaii, or students pursuing a second bachelor's degree in the majors in these colleges, will be held to the following requirements:

Foreign Language
Complete 2 years high school or 1 year of college in a single foreign language.

Additional 2 semester credits and 1 additional lab science
For a total of 12 semester credits of GER sciences and 2 lab (L) courses.

Upper-Division Requirements

All community college transfer students with an approved transferable degree will be held to these requirements:

Tier III Course (GER)
(For students with Initial Postsecondary Enrollment beginning Fall Semester 1995.)

- choose one 3 cr

University Writing Portfolio/Qualifying Exam
Students must satisfy this requirement once they have earned 60 credit hours.

Writing in the Major [M]
Required for all majors. Consult your major department for details.

- choose one
- choose one

Minimum University graduation requirements: 120 total hours, 40 upper-division credit hours, and a 2.0 overall grade point average.

- Initial postsecondary enrollment is established by matriculation through a formal admission process, after high school graduation, to an accredited institution of higher education.
- An approved transferable AA degree from Washington, Oregon, Idaho, California, Arizona, or Hawaii completes all lower division GER requirements except for the additional requirements in the College of Liberal Arts and the College of Sciences.
- [G] meets a GER in either Intercultural Studies or Arts and Humanities; [K] meets a GER in either Intercultural Studies or Social Sciences; [L] course includes a lab; [D] meets the American Diversity requirement and another GER course designation.

Prepared by the Student Advising and Learning Center
The General Education Program

Please note: Students attending WSU Vancouver should refer to the Vancouver Campus section of this catalog for information on General Education requirements. Honors students complete the Honors College version of the General Education Requirements outlined in the Honors section of this catalog.

The General Education Program is the core of the undergraduate curriculum. While the greater part of students’ courses of study will be devoted to their major fields, the General Education requirements provide a means of balance between the narrow focus of the major and the broader traditional objectives of higher education. General Education is intended to accommodate needs and objectives not adequately served by academic specialization. Accordingly, the program offers a wide variety of elective choices and provides many individual pathways through the curriculum. General Education is designed to serve the following aims:

Providing a Foundation for the Major

To function well in the workplace, it is necessary to see beyond it. The General Education curriculum therefore encourages integration of students’ anticipated careers within larger, more encompassing, and multiple contexts. Exposure to different values, perspectives, and cultural traditions is a valuable preparation for the kinds of work that college graduates do, and this knowledge can significantly enrich students’ awareness of the context and meaning of their careers.

Realizing Individual Student Potentials

A traditional purpose of higher education is to foster and develop potentials in the individual; hence, General Education offers opportunities for personal enrichment and serves a variety of intellectual, aesthetic, and creative interests. The curriculum provides for introspection and testing one’s own values as well for enlarging one’s vision. The several kinds of study required in General Education are designed to contribute to the development of higher intellectual skills, such as critical thinking and essential communications skills.

Preparation for Membership in the Community

General Education prepares students for citizenship in a free society. For these purposes, the curriculum represents an effort to define the ever-changing body of valuable common knowledge. Shared knowledge and values growing out of common educational experience help to bind society together and make communication possible. Writing proficiency and information literacy are accordingly high priorities at WSU, and the foundation of these skills is laid in the General Education courses. The curriculum also provides opportunities for hands-on service learning and emphasizes study of the relevant past as a way for students to understand and engage contemporary issues.

Integration of Knowledge

The breadth requirements in General Education reflect our historical experience of how new knowledge has been acquired and how it is likely to be acquired in the future. Consequently, the curriculum facilitates the acquisition of a working knowledge of a broad range of scholarly methods, from the arts and humanities to the sciences. One of the goals of General Education is to assist students to understand the characteristic ways of acquiring knowledge in different fields of study and their methods of verification and communication. Increasingly, higher education is about learning how to learn; the General Education curriculum therefore prepares students for continued life-long learning, equipping them with research skills and a general competence in evaluating information and constructing knowledge.

Pursuant to these aims, the faculty has established minimum standards in terms of credit hours, grade points, distribution requirements, and has organized the curriculum to help students achieve the following learning goals:

### General Education Learning Goals

**As outcomes of their education, WSU students should be able to:**

1. **Reason critically and creatively**
   - Define, analyze, and solve problems
   - Integrate and synthesize knowledge from multiple sources
   - Assess the accuracy and validity of findings and conclusions
   - Understand how one thinks, reasons, and makes value judgments, including ethical and aesthetic judgments
   - Understand diverse viewpoints, including differing philosophical and cultural perspectives

2. **Use quantitative and symbolic reasoning**
   - Understand and apply quantitative principles and methods in the solution of problems
   - Draw conclusions from computational and symbolic representations in order to check the logic and validity of statements and models
   - Employ symbolic reasoning to understand and interpret the variety of discourses in the arts, humanities, and social sciences

3. **Conduct self-directed learning projects (i.e., attain information literacy)**
   - Effectively frame and solve problems
   - Demonstrate knowledge of research and information retrieval strategies in the library and on the internet
   - Evaluate sources and data

4. **Communicate clearly, concisely and effectively**
   - Critically analyze written information
   - Show awareness of contexts, audiences, styles, and conventions
   - Use correct Standard English

5. **Demonstrate knowledge of self in diverse cultural contexts and understand the relationship of one’s own society to other societies and groups**
   - Understand how people think, reason, and make value judgments
   - Understand distinctions between value assertions and statements of fact
   - Demonstrate broad knowledge of the human past, including the historical development of human knowledge in global contexts
   - Demonstrate broad knowledge of differing philosophical and cultural perspectives
   - Demonstrate knowledge of historical and contemporary systems of political, religious, ethical, and aesthetic values
   - Understand perspectives linked to race, gender, ethnicity in American society and in international contexts
   - Understand the interactions of society and the environment
   - Recognize one’s responsibilities, rights, and privileges as a citizen

6. **Acquire knowledge in a variety of scholarly modes and contexts and recognize diverse disciplinary viewpoints and methods**
   - Understand and apply scientific principles and methods
   - Understand and apply quantitative principles and methods
   - Understand and apply the principles and methods of the arts and humanities
   - Understand and apply the principles and methods of the social sciences

The General Education Requirements (GERs) are a subset of the University Requirements (see below) and apply to all undergraduate students except those in the Honors College. The goals of the program derive from WSU’s Six Goals for the Baccalaureate.
The Structure of the General Education Program

Students are required to take a minimum of 40 credit hours distributed among the categories listed below.

<table>
<thead>
<tr>
<th>Tier I: 15 semester credit hours</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>World Civilizations [A] GenEd 110 and 111</td>
<td>6</td>
</tr>
<tr>
<td>Written Communication [W]</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics Proficiency [N]</td>
<td>3</td>
</tr>
<tr>
<td>Sciences [Q]</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tier II: 22 semester credit hours</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Proficiency [W], [C]</td>
<td>3</td>
</tr>
<tr>
<td>Arts and Humanities [H], [G]¹</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences [S], [K]²</td>
<td>3</td>
</tr>
<tr>
<td>Arts and Humanities/Social Sciences [H], [G], [S], [K]³</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural Studies [I], [G], [K]</td>
<td>3</td>
</tr>
<tr>
<td>Sciences [B], [P]⁴</td>
<td>7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tier III: 3 semester credit hours</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>American Diversity course [D]⁵</td>
<td>3</td>
</tr>
<tr>
<td>total hours</td>
<td>40</td>
</tr>
</tbody>
</table>

¹A total of 9 hours of Arts and Humanities and Social Sciences with a minimum of 3 in either.
²At least 3 hours in Biological Science and 3 hours in Physical Science plus 1 additional hour for three clock hours per week of laboratory.
³To complete the General Education Requirements, students must choose one course that is also designated as an American Diversity [D] course. This course adds no credit hours to the General Education Requirements as American Diversity courses also fulfill GER requirements in another area.

The Tiers in the General Education Program

Courses satisfying the General Education requirements are organized in three tiers. Tier I is designed for first-year students and addresses essential knowledge and skills needed for success in the rest of the undergraduate curriculum. Tier I consists of core courses required of all entering first-year students in World Civilizations (GenEd 110 and 111) and English composition (Engl 101); broad introductory courses in the sciences (designated [Q]); and a selection of courses in mathematics (designated [N]).

Tier II courses are typically introductions to the scholarly disciplines and constitute the bulk of the distribution requirements in the several academic areas: Arts and Humanities, Social Sciences, Biological and Physical Sciences, and Communication Proficiency. Some more advanced (300-level) Tier II courses provide further experience with scholarly approaches, methods, and issues. Courses in this tier will commonly be taken in the student’s first two years of study. Tier I and Tier II courses may be taken concurrently. Tier II courses are designated at the 100, 200, or 300 level to indicate the level of academic challenge.

Tier III provides the final component of study in general education. Tier III courses are 400-level and have as a general prerequisite 60 hours of course work; there may be additional prerequisites for specific courses. Tier III courses are intended to engage students in significant writing and research projects outside of their majors.

General Education and Graduation Requirements

In addition to meeting the requirements of the major programs, students are required to earn a minimum of 120 total semester credits, with a grade point average of 2.0 or better; and earn a minimum of 40 semester credits at the 300-400-level.

Students are also required to take a minimum of 40 semester credit hours distributed among the General Education categories listed below and to fulfill the Writing Program requirements (i.e. University Writing Portfolio and Writing in the Major), that are integrated with or that supplement the General Education Program. (For a more detailed account of the requirements, policies on transfer credit and catalog limitations, etc., see the “Summary of Academic Policies” section of this catalog.)

1. Communication Proficiency [C]—6 hours including at least 3 in written communication [W] and 3 of [W] or [C]. Prior to enrollment in freshman writing courses, all students must take a mandatory writing placement examination for the purpose of placement in appropriate writing courses. The Writing Placement Examination is administered during summer New Student Orientation, at the beginning of fall semester, and prior to spring registration. Examination results will place students in the core writing course, Engl 101, Introductory Writing (or equivalent), or in Engl 101 plus 1 hour of Engl 102, Writing Tutorial. Students whose native language is not English may be placed in Engl 105, Composition for ESL Students. In some instances, students may be exempted from Engl 101 on the basis of their performance in the Placement Examination. Questions should be directed to the WSU Writing Assessment Office, CUE 305, 509-335-7959.

2. World Civilizations [A]—6 hours (GenEd 110 and 111).

3. American Diversity [D]—The American Diversity requirement must be met by passing a designated [D] course which also meets a GER requirement in another category, such as social sciences or arts and humanities.

4. Mathematics Proficiency [N]—This requirement can be satisfied by passing a designated course or courses in mathematics, through satisfactory performance on an Advanced Placement examination, or by passing a calculus course beyond Math 171.

5. Arts and Humanities [H], [G]—3 hours minimum; a total of 9 hours must be completed within Arts and Humanities and Social Sciences.

6. Social Sciences [S], [K]—3 hours minimum; a total of 9 hours must be completed within Arts and Humanities and Social Sciences.

7. Intercultural Studies [I], [G], [K]—3 hours designated course work.

8. Sciences [B], [P], [Q]—10 hours including at least 3 hours in Biological Sciences and 3 hours in Physical Sciences, plus 1 credit hour of laboratory [L] in either. Students may elect to fulfill the science requirement by taking all 10 credits in Tier II. Non-science majors are encouraged to take a Tier I science course as an elective.

9. Tier III [T]—3 hours of designated upper-division work outside the major. Tier III courses for General Education credit must be taken outside a student’s major. Students may take Tier III courses only after earning approximately 60 total hours and meeting specific course prerequisites.

10. The University Writing Portfolio—Successful completion of the WSU Writing Portfolio is a requirement for graduation at WSU. This is an upper-division requirement not satisfied by approved AA/AS degrees. Students must fulfill this requirement--sometimes called the “Junior Writing Portfolio”--once they have earned 60 credit hours or junior standing. To complete the Writing Portfolio, students must submit three papers they have written in response to college course assignments and also take a timed writing examination consisting of two writing exercises. The Writing Portfolio is a mid-career assessment of student progress and a diagnostic about student readiness for upper division writing challenges. Therefore the Portfolio must be completed before a student enrolls in Writing in the Major [M] courses. For more information, visit www.juniortfolio.wsu.edu.

11. Writing in the Major [M]—The Writing in the Major requirement is a universal major requirement. While not formally part of the General Education Program, the Writing in the Major requirement builds upon and extends the learning acquired in General Education. The “M” courses further develop students’ communication skills by preparing them for the special challenges of communicating within the disciplines and career areas of their chosen specialty. Once they have certified in a major, all undergraduates must complete at least two Writing in the Major courses in their major fields of study. [Consult the catalog description of your anticipated major for details.]

Total hours of General Education: 40+
General Rules

No course designated as a General Education Requirement (GER) can be taken on a pass, fail basis. Courses in, or crosslisted with, a student’s major field may not be used to satisfy General Education Requirements, except in Written Communication Proficiency (English majors may use English composition).

Transfer Students: Two full years of credit and completion of lower-division General Education Requirements normally will be granted to students who have been awarded the Direct Transfer Associate (AA) degree from a Washington community college. The associate of Arts—Oregon transfer degree from an Oregon community college guarantees completion of the lower-division General Education Requirements, but does not guarantee junior standing or 60 semester credits. Certain approved associate’s degrees from Arizona, California, Hawaii, and Idaho may also be considered to have fulfilled the lower division GERs for graduation, but do not guarantee junior status (60 semester credits). For details on specific degrees consult the Office of Admissions. These students will still be responsible for meeting the other requirements for graduation, including those in the college and major department. The University Writing Portfolio and the upper-division Tier III course are not lower-division requirements and therefore cannot be satisfied by the approved AA or AS degrees. Please note that other kinds of degrees from community colleges, or degrees from states other than Washington and Oregon, do not automatically fulfill General Education Requirements.

Foreign Language Fluency Track: To encourage the attainment of fluency in a foreign language, students who have completed both the second year of a foreign language (e.g., Span 203 and 204) and an approved study abroad program in the same language may substitute 6 hours of study abroad credit for 3 hours of Arts and Humanities and 3 hours of Intercultural Studies general education credit. Students majoring in foreign languages are not eligible. See the Department of Foreign Languages and Cultures or International Programs for details.

General Education Categories and Course Lists

COMMUNICATION PROFICIENCY [W, C] (6 hours, including at least 3 in written communication [W] and 3 in either [W] or [C])

The Communication Proficiency requirement prepares students to communicate effectively orally or in writing in a variety of circumstances and occasions; to understand and respond appropriately to specific audiences; and to know and be able to use specific genres and conventions, including those of academic discourse. Writing or speaking from sources requires a general understanding of how information is created and organized, as well as the ability to access, evaluate, synthesize and incorporate information into presentations or documents. Communication in higher education requires students to master the elements of information literacy. Courses in this category provide extensive practice in those skills as well as experience in self-evaluation, revision, and critiquing the work of peers.

This requirement supports the communication proficiency, critical thinking, and information literacy goals outlined in the Six Learning Goals for the Baccalaureate. Other General Education courses also support these learning goals by providing opportunities for writing and revision.

WRITTEN COMMUNICATION PROFICIENCY [W]

<table>
<thead>
<tr>
<th>Tier I</th>
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<tbody>
<tr>
<td>Engl 101</td>
<td>Introductory Writing</td>
</tr>
<tr>
<td>Engl 103</td>
<td>Rhetorics of Change</td>
</tr>
<tr>
<td>Engl 105</td>
<td>Composition for ESL Students</td>
</tr>
<tr>
<td>Engl 198</td>
<td>English Composition Honors</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tier II</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 200</td>
<td>Expository Writing</td>
</tr>
<tr>
<td>Engl 201</td>
<td>Writing and Research</td>
</tr>
<tr>
<td>Engl 298</td>
<td>Writing and Research Honors</td>
</tr>
<tr>
<td>Engl 301</td>
<td>Writing and Rhetorical Conventions</td>
</tr>
<tr>
<td>Engl 302</td>
<td>Writing About Literature</td>
</tr>
<tr>
<td>Engl 402</td>
<td>Technical and Professional Writing</td>
</tr>
<tr>
<td>Engl 403</td>
<td>Technical and Professional Writing ESL</td>
</tr>
<tr>
<td>Phil 200</td>
<td>Writing and Reasoning</td>
</tr>
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COMMUNICATION PROFICIENCY [C]

<table>
<thead>
<tr>
<th>Tier II</th>
<th></th>
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<tbody>
<tr>
<td>ComSt 102</td>
<td>Public Speaking: Theory, Models, and Practice</td>
</tr>
<tr>
<td>ComSt 235</td>
<td>Principles of Group Communication</td>
</tr>
<tr>
<td>ComSt 302</td>
<td>Advanced Public Speaking</td>
</tr>
<tr>
<td>ComSt 324</td>
<td>Argumentation</td>
</tr>
<tr>
<td>Engl 355</td>
<td>Multimedia Authoring: Exploring New Rhetorics</td>
</tr>
<tr>
<td>H D 205</td>
<td>Communication in Human Relations</td>
</tr>
</tbody>
</table>

WORLD CIVILIZATIONS [A] (6 hours)

The World Civilizations Tier I core courses provide an overview of the human past and an introduction to the academic culture of the University, including the fundamentals of academic discourse. Course work is designed to engage students in integrated study of the social, political, philosophical, and religious systems of the major world civilizations, along with their interactions, achievements, and common problems. The World Civilizations courses introduce students to methods of historical inquiry and engage them in the processes of constructing interpretations of the past. These courses build foundational skills in communication, interpretation, information literacy, and critical thinking, while establishing a knowledge base for students to understand themselves in relation to society.

Students may explore the various emphases in the sections of World Civilizations by visiting the World Civilizations home page.

Note: Transfer students entering the University with junior standing (60 semester credits or more) may choose to substitute designated 200- and 300-level courses from the Intercultural Studies course list for one or both of the World Civilizations courses (GenEd 110 and 111), provided that the subject matter of the courses addresses non-U.S. culture(s).

AMERICAN DIVERSITY [D]

Courses addressing American Diversity seek to engage students in critical inquiry into contemporary and historical issues of social and cultural diversity in the United States. Understanding our complexly constituted American community is the focus of this requirement; thus, “D” courses explore the construction of differences in American society and provide an overview of the social, economic, and political forces that have shaped the experience of diverse communities throughout U.S. history. Coursework introduces students to issues of power and privilege, systems of inequality, and forms of institutionalized discrimination within American society. Courses in this category provide conceptual frameworks for analysis of these topics; they are designed to raise questions, stimulate thought and reflection, and challenge stereotypes and myths.

Many D courses are grounded in specific social science or humanities disciplines, while others employ integrated and multidisciplinary approaches. In acquiring knowledge about themselves and American society, students will learn to think critically and to construct knowledge through a variety of scholarly methods and approaches, and to expand their communication and interpretive skills.

Note: Courses meeting the American Diversity requirement are distributed in several of the General Education categories and are double-designated with other distribution requirements, such as Humanities, Social Sciences, or Tier III.

<table>
<thead>
<tr>
<th>Tier I</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GenEd 110</td>
<td>World Civilizations I</td>
</tr>
<tr>
<td>GenEd 111</td>
<td>World Civilizations II</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tier III</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Am St/Engl/Hist/W St 216</td>
<td>[S] American Cultures</td>
</tr>
<tr>
<td>Am St 473</td>
<td>[T] Arts in American Cultures</td>
</tr>
<tr>
<td>Am St 474</td>
<td>[T] Social Movements and US Culture</td>
</tr>
<tr>
<td>Am St/Engl 475</td>
<td>[T] Digital Diversity</td>
</tr>
<tr>
<td>AMT 417</td>
<td>[T] Social and Psychological Aspects of Dress</td>
</tr>
<tr>
<td>Anth/W St 214</td>
<td>[S] Gender and Culture in America</td>
</tr>
<tr>
<td>Anth 327/CES 378</td>
<td>[S] Contemporary Native Peoples of the Americas</td>
</tr>
<tr>
<td>Anth 334</td>
<td>[T] Time and Culture in the Northwest</td>
</tr>
<tr>
<td>CES 111</td>
<td>[S] Introduction to Asian/Pacific American Studies</td>
</tr>
<tr>
<td>CES 131</td>
<td>[S] Introduction to Black Studies</td>
</tr>
</tbody>
</table>
The General Education Program

W St/Soc 484 [T] Lesbian and Gay Studies
W St/CES 408 [T] Introduction to Critical Race Feminism
W St 338 [H] African American Cinema
Soc/W St 372/Anth 312 [S] Native American Women in Traditional and Contemporary Societies
H D 350 [S] Diversity in Contemporary Families
Hist/W St 298 [S] History of Women in American Society
Hist 314/CES 304 [H] American Roots: Immigration, Migration, and Ethnic Identity
Hist 315 [H] U.S. Popular Culture, 1800-1930
Hist 322 [H] U.S. Popular Culture Since 1930
Hist 325 [S] Food in the United States
Hist/W St 398 [H] History of Women in the American West
Hist 350 [S] People of the United States
Hist 371 [H] History of Jazz
Hist 372/Anth 312 [S] Native American Women in Traditional and Contemporary Societies
Psych 309 [S] Cultural Diversity in Organizations
Psych 317 [H] History of the Visual and Kinetic Arts
Psych/W St 324 [S] Psychology of Women
Soc 101 [S] Social Problems
Soc 102 [S] Social Problems
Soc/W St 150 [S] Marital and Sexual Life Styles
Soc 340 [S] Social Inequality
Soc 343 [S] Sociology of Professions and Occupations
Soc 345 [S] Sociology of Sport
Soc 346 [S] Sociology of Education
Soc/W St 351 [S] The Family
Soc 362 [S] Juvenile Delinquency
Soc 373 [S] Media, Culture, and Society
Soc 380 [S] Gender and Work
Soc/W St 383 [S] Sociology of Sexuality
Soc/W St 384 [S] Sociology of Gender
W St 200 [S] Gender and Power: Introduction to Women's Studies
W St 220 [S] Women, Science, and Culture
W St/Soc 302 [S] Contemporary Masculinity and Men's Issues
W St/MgtOp 315 [S] Women in Management and Leadership
W St 338 [H] Women and Popular Culture
W St/Soc 390 [S] Gender and Work
W St/CES 408 [T] Introduction to Critical Race Feminism
W St/Soc 484 [T] Lesbian and Gay Studies

MATHEMATICS PROFICIENCY [N] (0-6 hours)

The purpose of the Mathematics Proficiency requirement is to establish a foundation of understanding of mathematics beyond arithmetic and algebraic manipulations and an understanding of the uses of mathematics in applications to real-world problems. Courses in this category assist students in understanding and applying quantitative principles and methods in the solution of problems and drawing conclusions from computational and symbolic representations. Courses in mathematics help students acquire concepts and skills in abstract, logical, and quantitative thinking. Students learn to reason critically and creatively to solve problems.

Note: This requirement can be satisfied by passing a designated course or courses in mathematics (see below), through satisfactory performance on an Advanced Placement examination, or by passing a calculus course beyond Math 171.

Tier I

Math 105
Math 140
Math 171
Math 202
Math/Stat 205
Math 206
Math 251
Stat/Math 212

Mathematics for Life Scientists
Calculus I
Introduction to Mathematical Analysis
Statistical Thinking
Mathematical Analysis for Architects

and

Mathematics for Elementary School Teachers

ARTS AND HUMANITIES [H, G*] (3-6 hours)

The production of art, creative expression, and the use of symbol systems and conventions to explore value and meaning are fundamental human activities. Similarly, interpretation of such systems or products is also an essential human skill—and one of our primary ways of making sense of experience. Music, theatre, the visual and kinetic arts offer direct participation in these activities while providing contexts and perspectives by which the arts acquire meaning. The humanities disciplines—philosophy, literature, history, and the study of language—offer multiple methods of interpretation and analysis. These disciplines also engage students in the history of ideas, acquaint them with significant cultural traditions, and give them direct experience of important cultural achievements. Study in the arts and humanities encourages students to explore their own cultural traditions and enables them to participate more fully in their own or other cultures.

Students who engage in these disciplines learn to use various modes of rational inquiry to understand complex human artifacts and, ultimately, to raise questions about the nature of rational inquiry itself. Thus, study in these disciplines develops students’ communication abilities and interpretive and critical thinking skills.

Tier II Arts and Humanities [H]

Anth 355
Arch/I D/L A 202
Arch 220
Arch 221

Language in History
The Built Environment
Architectural History I
Architectural History II

CES/Engl 220
CES 235/ Hist 205/W St 235

[D] Introduction to Multicultural Literature
[DA] African American History

CES 336
CES 338
CES 379

[D] Black Popular Culture
[D] African American Cinema
[D] Native Americans and Film

DTC 375
Engl 108
Engl 110

Language, Texts, and Technology
Introduction to Literature
Reading Now

Engl 199
Engl 205
Engl 209
Engl 210
Engl 305
Engl 306
Engl 308/W St 306
Engl 317

English Composition and Literature Honors
Introduction to Shakespeare
Readings in English Literature
Readings in American Literature
Shakespeare
Shakespeare
Introduction to Literary Criticism
Gay and Lesbian Literature
The General Education Program

The Social Sciences apply scientific principles and methods to understand individual and collective human behavior. These disciplines cover a broad range of subjects, from psychology to sociology and political science, to history and anthropology and economics. Generally speaking, the social sciences examine mental processes, culture, and behavior; study the structures of society and how individuals, groups, institutions, and societies interact with each other and with their environments; and reconstruct how societies functioned in the past. The Social Sciences employ diverse methods and approaches, both qualitative and quantitative, as well as a variety of explanatory theories and models.

Course work in the Social Sciences offers valuable perspectives on individual and collective human behavior within a variety of social contexts and environments, while providing analytical tools for understanding these processes. In acquiring knowledge about themselves and society, students will learn to think critically, to use quantitative methods to assess validity, and to construct knowledge through a variety of scholarly methods and approaches. They also assist students to expand their communication skills in self-directed learning projects.

SOCIAL SCIENCES [S, K#] (3-6 hours)

The Social Sciences apply scientific principles and methods to understand individual and collective human behavior. These disciplines cover a broad range of subjects, from psychology to sociology and political science, to history and anthropology and economics. Generally speaking, the social sciences examine mental processes, culture, and behavior; study the structures of society and how individuals, groups, institutions, and societies interact with each other and with their environments; and reconstruct how societies functioned in the past. The Social Sciences employ diverse methods and approaches, both qualitative and quantitative, as well as a variety of explanatory theories and models.

Course work in the Social Sciences offers valuable perspectives on individual and collective human behavior within a variety of social contexts and environments, while providing analytical tools for understanding these processes. In acquiring knowledge about themselves and society, students will learn to think critically, to use quantitative methods to assess validity, and to construct knowledge through a variety of scholarly methods and approaches. They also assist students to expand their communication skills in self-directed learning projects.
### Tier II Social Sciences [S]

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag Ec 201</td>
<td>Economics in Agriculture</td>
</tr>
<tr>
<td>Ag Ec/Hist 320</td>
<td>American Agriculture and Rural Life</td>
</tr>
<tr>
<td>Am St/Engl/Hist/W St 216</td>
<td>[D] American Cultures</td>
</tr>
<tr>
<td>Anth 198</td>
<td>Anthropology Honors</td>
</tr>
<tr>
<td>Anth/W St 214</td>
<td>[D] Gender and Culture in America</td>
</tr>
<tr>
<td>Anth 327/CES 378</td>
<td>[D] Contemporary Native Peoples of the Americas</td>
</tr>
<tr>
<td>Anth 330</td>
<td>Origins of Culture and Civilization</td>
</tr>
<tr>
<td>Anth 334</td>
<td>[D] Time and Culture in the Northwest</td>
</tr>
<tr>
<td>Anth/For L 350</td>
<td>Speech, Thought, and Culture</td>
</tr>
<tr>
<td>CES 111</td>
<td>[D] Introduction to Asian/Pacific American Studies</td>
</tr>
<tr>
<td>CES 131</td>
<td>[D] Introduction to Black Studies</td>
</tr>
<tr>
<td>CES/Psych 203</td>
<td>Introduction to Critical Psychology</td>
</tr>
<tr>
<td>CES 204</td>
<td>Critical Studies in Whiteness</td>
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<tr>
<td>CES 205</td>
<td>[D] Farm Workers</td>
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<tr>
<td>CES 254</td>
<td>[D] Comparative Latino/a Cultures</td>
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<tr>
<td>CES/Hist/W St 255</td>
<td>[D] Chicana/o History</td>
</tr>
<tr>
<td>CES 260</td>
<td>[D] Race and Racism in US Popular Culture</td>
</tr>
<tr>
<td>CES/Hist 280</td>
<td>[D] Race and the Law in American History</td>
</tr>
<tr>
<td>CES 302</td>
<td>[D] Social Psychology of Prejudice</td>
</tr>
<tr>
<td>CES 335/Hist 313</td>
<td>Civil Rights Movement in America</td>
</tr>
<tr>
<td>CES 337</td>
<td>[D] Black Social Psychology</td>
</tr>
<tr>
<td>CES/W St 372/Anth 312</td>
<td>[D] Native American Women in Traditional and Contemporary Societies</td>
</tr>
<tr>
<td>CES 380</td>
<td>[D] Immigration and Citizenship in the Global Economy</td>
</tr>
<tr>
<td>Com 101</td>
<td>Mass Communications and Society</td>
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<tr>
<td>Crm J 205</td>
<td>Realizing Justice in a Multicultural Society</td>
</tr>
<tr>
<td>CRS/H D 334</td>
<td>Principles of Community Development</td>
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<tr>
<td>CRS 335</td>
<td>Cross-National Perspectives on Community</td>
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<tr>
<td>CRS 336</td>
<td>Agriculture, Environment, and Community</td>
</tr>
<tr>
<td>Dist/Soc 250</td>
<td>[D] Perspectives on Disability</td>
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<tr>
<td>EconS 101</td>
<td>Fundamentals of Microeconomics</td>
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<tr>
<td>EconS 102</td>
<td>Fundamentals of Macroeconomics</td>
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<td>Economics Honors</td>
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<tr>
<td>Ger 121</td>
<td>Contemporary German Culture</td>
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<td>H D 101</td>
<td>Human Development Across the Lifespan</td>
</tr>
<tr>
<td>H D 204</td>
<td>Family Systems: Understanding Family Interaction</td>
</tr>
<tr>
<td>H D 350</td>
<td>[D] Diversity in Contemporary Families</td>
</tr>
<tr>
<td>Hist 110</td>
<td>American History to 1877</td>
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<tr>
<td>Hist 111</td>
<td>American History Since 1877</td>
</tr>
<tr>
<td>Hist 150</td>
<td>[D] Peoples of the United States</td>
</tr>
<tr>
<td>Hist 198</td>
<td>History Honors</td>
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<tr>
<td>Hist 290</td>
<td>Honors History II</td>
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<tr>
<td>Hist/W St 298</td>
<td>[D] History of Women in American Society</td>
</tr>
<tr>
<td>Hist 315</td>
<td>[D] Poverty and Policy in American History</td>
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<tr>
<td>Hist 325</td>
<td>[D] Food in the United States</td>
</tr>
<tr>
<td>Hist 326</td>
<td>Abraham Lincoln and the Lincoln Legacy</td>
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<tr>
<td>Hist/W St 350</td>
<td>European Women's History, 1400-1800</td>
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<td>Hist/W St 380</td>
<td>History of Medicine</td>
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<tr>
<td>Hist 381</td>
<td>Science in Western Civilization Through Newton</td>
</tr>
<tr>
<td>Hist 382</td>
<td>Science in Western Civilization from Newton to Einstein</td>
</tr>
<tr>
<td>NATRS 312</td>
<td>[D] Natural Resource and Society</td>
</tr>
<tr>
<td>Pol S 101</td>
<td>American National Government</td>
</tr>
<tr>
<td>Pol S 102</td>
<td>Introduction to Comparative Politics</td>
</tr>
<tr>
<td>Pol S 103</td>
<td>International Politics</td>
</tr>
<tr>
<td>Pol S 198</td>
<td>Political Science Honors</td>
</tr>
<tr>
<td>Pol S/W St 305</td>
<td>Gender and Politics</td>
</tr>
<tr>
<td>Pol S 333</td>
<td>Development of Marxist Thought</td>
</tr>
<tr>
<td>Psych 105</td>
<td>Introductory Psychology</td>
</tr>
<tr>
<td>Psych 198</td>
<td>Psychology Honors</td>
</tr>
<tr>
<td>Psych/CES 203</td>
<td>Introduction to Critical Psychology</td>
</tr>
<tr>
<td>Psych 309</td>
<td>[D] Cultural Diversity in Organizations</td>
</tr>
<tr>
<td>Psych/W St 324</td>
<td>[D] Psychology of Women</td>
</tr>
<tr>
<td>Psych/Soc 350</td>
<td>Social Psychology</td>
</tr>
<tr>
<td>Psych 361</td>
<td>Principles of Developmental Psychology</td>
</tr>
</tbody>
</table>

### Tier II Social Sciences or Intercultural Studies, [K]

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anth 101</td>
<td>General Anthropology</td>
</tr>
<tr>
<td>Anth 203</td>
<td>Peoples of the World</td>
</tr>
<tr>
<td>Anth/Asia/Hist 306</td>
<td>Childhood and Culture</td>
</tr>
<tr>
<td>Anth 302</td>
<td>Cultures and Peoples of the Middle East</td>
</tr>
<tr>
<td>Anth 307</td>
<td>Contemporary Cultures and Peoples of Africa</td>
</tr>
<tr>
<td>Anth 309</td>
<td>Cultural Ecology</td>
</tr>
<tr>
<td>Anth/W St 316</td>
<td>Gender in Cross Cultural Perspective</td>
</tr>
<tr>
<td>Anth 320/CES 377</td>
<td>Native Peoples of North America</td>
</tr>
<tr>
<td>Anth 331/CES 376</td>
<td>America Before Columbus</td>
</tr>
<tr>
<td>Anth 390</td>
<td>Maya, Aztec and Inca Civilizations</td>
</tr>
<tr>
<td>Asia 301</td>
<td>East Meets West</td>
</tr>
<tr>
<td>CES 211/Hist 201</td>
<td>Asian Pacific/American History</td>
</tr>
<tr>
<td>CRS 335</td>
<td>Cross-National Perspectives on Community</td>
</tr>
<tr>
<td>Hist 230</td>
<td>Latin America, The Colonial Period</td>
</tr>
<tr>
<td>Hist 231</td>
<td>Latin America, The National Period</td>
</tr>
<tr>
<td>Hist/Asia 270</td>
<td>Introduction to South Asian Culture</td>
</tr>
<tr>
<td>Hist/Asia 271</td>
<td>Southeast Asian History: Vietnam to Indonesia</td>
</tr>
<tr>
<td>Hist/Asia 275</td>
<td>Introduction to East Asian Culture</td>
</tr>
<tr>
<td>Hist 308/CES 375</td>
<td>North American Indian History, Precontact to Present</td>
</tr>
<tr>
<td>Hist 331</td>
<td>Cultural History in Latin America</td>
</tr>
<tr>
<td>Hist/W St 335</td>
<td>Women in Latin American History</td>
</tr>
<tr>
<td>W St 220</td>
<td>Women, Science, and Culture</td>
</tr>
</tbody>
</table>

## Intercultural Studies [I, G*, K#] (3 hours)

The Intercultural Studies requirement complements the study of diversity in American society and is intended to enlarge students’ international perspectives and increase their sensitivity to cultural differences around the globe. Intercultural Studies courses foster an awareness of the diversity of human values and encourage a coherent view of cultures different from our own. Courses in this category encourage students to understand the histories, cultures, values, and politics outside of the United States and Europe. Course work addresses non-Western experiences, identities, and institutions, and fosters critical engagement with the economic, political, and social processes that have created our global community. Some Intercultural Studies courses focus on U.S. ethnic minorities of non-Western origin as a way to global understanding.

Many Intercultural Studies courses are grounded in specific social science or humanities disciplines, while others employ integrated and multidisciplinary approaches.
approaches. In acquiring knowledge about global society, students will learn to think critically and to construct knowledge through a variety of scholarly methods and approaches, and to expand their communication and interpretive skills.

Note: Substitution policy for transfer students or students in approved study abroad programs: only equivalent, formal academic course work which focuses on the study of non-Western cultures or the experiences of American ethnic minorities may satisfy the Intercultural Studies requirement. Non-Western culture must be the formal subject of the academic course. Non-academic work, academic work on other topics, foreign travel, or life-experience abroad cannot qualify.

*[G] designates courses which meet General Education Requirements in either Arts and Humanities or Intercultural Studies.

#K] designates courses which meet General Education Requirements in either Social Sciences or Intercultural Studies.

Tier II Intercultural Studies [I,G,K]

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>Anth 101</td>
<td>[K] General Anthropology</td>
</tr>
<tr>
<td>Anth 130</td>
<td>Great Discoveries in Archaeology</td>
</tr>
<tr>
<td>Anth 201</td>
<td>[G] Art and Society</td>
</tr>
<tr>
<td>Anth 203</td>
<td>[K] Peoples of the World</td>
</tr>
<tr>
<td>Anth 301</td>
<td>[G] Arts and Media in Global Perspective</td>
</tr>
<tr>
<td>Anth 302</td>
<td>[K] Childhood and Culture</td>
</tr>
<tr>
<td>Anth/Asia Hist 306</td>
<td>[K] Cultures and Peoples of the Middle East</td>
</tr>
<tr>
<td>Anth 307</td>
<td>[K] Contemporary Cultures and Peoples of Africa</td>
</tr>
<tr>
<td>Anth 309</td>
<td>[K] Cultural Ecology</td>
</tr>
<tr>
<td>Anth/CES 325</td>
<td>Traveling Cultures: Tourism in Global Perspective</td>
</tr>
<tr>
<td>Anth/W St 316</td>
<td>[K] Gender in Cross Cultural Perspective</td>
</tr>
<tr>
<td>Anth 320/CES 377</td>
<td>[K] Native Peoples of North America</td>
</tr>
<tr>
<td>Anth 331/CES 376</td>
<td>[K] America Before Columbus</td>
</tr>
<tr>
<td>Asia 301</td>
<td>[K] East Meets West</td>
</tr>
<tr>
<td>CES 101</td>
<td>Introduction to Comparative American Cultures</td>
</tr>
<tr>
<td>CES 151</td>
<td>[G] Introduction to Chicano Studies</td>
</tr>
<tr>
<td>CES 171</td>
<td>[G] Introduction to Native American Studies</td>
</tr>
<tr>
<td>CES 198</td>
<td>Introduction to Comparative American Cultures - Honors</td>
</tr>
<tr>
<td>CES 211/ Hist 201</td>
<td>[K] Introduction to Asian American History</td>
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<tr>
<td>CES 227</td>
<td>Introduction to African Studies</td>
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<tr>
<td>CES 240</td>
<td>Global Indigenous Issues</td>
</tr>
<tr>
<td>CES 313/Engl 311</td>
<td>[G] Asian Pacific/American Literature</td>
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<tr>
<td>CES/Anth 325</td>
<td>Traveling Cultures: Tourism in Global Perspective</td>
</tr>
<tr>
<td>CES 331/Engl 321</td>
<td>[G] African American Literature</td>
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<tr>
<td>CES 335/Engl 345</td>
<td>[G] Chicano/Chicana Literature</td>
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<tr>
<td>CES 373/Engl 341</td>
<td>[G] Native American Literature</td>
</tr>
<tr>
<td>Chin/Asia/Japn 111</td>
<td>[G] Asian Film</td>
</tr>
<tr>
<td>Chin/Japn 131</td>
<td>[G] Masterpieces of Asian Literature</td>
</tr>
<tr>
<td>Com 321</td>
<td>Intercultural Communication</td>
</tr>
<tr>
<td>CropS/Soils 360</td>
<td>World Agricultural Systems</td>
</tr>
<tr>
<td>CRS 335</td>
<td>[K] Cross-National Perspectives on Community</td>
</tr>
<tr>
<td>Engl 222</td>
<td>[G] World Literature in English</td>
</tr>
<tr>
<td>Engl/CES 316</td>
<td>[G] South Asian Film</td>
</tr>
<tr>
<td>F A 301</td>
<td>[G] Arts of Native North America</td>
</tr>
<tr>
<td>F A/Asia 302</td>
<td>[G] The Arts of Asia</td>
</tr>
<tr>
<td>For L 101</td>
<td>[G] Introduction to the World of Languages</td>
</tr>
<tr>
<td>For L 120</td>
<td>[G] Introduction to Foreign Cultures</td>
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<tr>
<td>For L 220</td>
<td>[G] Global Theory/Regional Reality through Culture</td>
</tr>
<tr>
<td>Fren 121</td>
<td>Francophone Culture</td>
</tr>
<tr>
<td>Fren 311</td>
<td>[G] Francophone Film</td>
</tr>
<tr>
<td>Fren 351</td>
<td>[G] Introduction to Francophone Literature</td>
</tr>
<tr>
<td>GenEd 200</td>
<td>[G] Studying World Civilizations Abroad</td>
</tr>
<tr>
<td>Hist 230</td>
<td>[K] Latin America, The Colonial Period</td>
</tr>
<tr>
<td>Hist 231</td>
<td>[K] Latin America, The National Period</td>
</tr>
<tr>
<td>Hist/Asia 270</td>
<td>[K] Introduction to South Asian Culture</td>
</tr>
</tbody>
</table>

SCIENCEs [Q, B, P] (10 hours)

Science is the application of critical and systematic thinking to empirical observation and experiment. The scientific approach is our fundamental way of understanding matter and the universe, the Earth, and living things. It is also the basis of most new technological developments.

Familiarity with the sciences encourages adoption of views about the world that are subject to revision on the basis of additional information. Accordingly, intellectual integrity and honesty are integral to scientific study, while the ability to distinguish between testable and non-testable ideas is an essential skill.

Courses in the science categories provide students with an understanding of particular scientific terms, methods, concepts, and theories, and introduce them to recent scientific and technological developments and their implications. Students in these courses learn ways of taking measurements, gathering data, and organizing information; they learn to use mathematics to construct scientific models and to test hypotheses and models.

General Education science courses teach students to think critically, to assess the accuracy and validity of findings and conclusions, to understand and apply quantitative principles to solve problems, and to acquire knowledge through a variety of scholarly methods and approaches.

Tier I [Q]

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>Astr 150</td>
<td>Science and the Universe</td>
</tr>
<tr>
<td>Biol 150</td>
<td>Evolution</td>
</tr>
<tr>
<td>Chem 150</td>
<td>Molecules and Science</td>
</tr>
<tr>
<td>Entom 150</td>
<td>Insects, Science, and World Cultures</td>
</tr>
<tr>
<td>Geol 150</td>
<td>Conflict and Debate in Geological Sciences</td>
</tr>
<tr>
<td>Hort 150</td>
<td>Plants and Society</td>
</tr>
<tr>
<td>Phys 150</td>
<td>Physics and Your World</td>
</tr>
<tr>
<td>Pl P 150</td>
<td>Molds, Mildews, Mushrooms: The Fifth Kingdom</td>
</tr>
<tr>
<td>Sci 101</td>
<td>Origins in the Natural World</td>
</tr>
<tr>
<td>Sci 102</td>
<td>Dynamic Systems in the Natural World</td>
</tr>
<tr>
<td>Soils 150</td>
<td>Science, Society, and Sustainable Food Systems</td>
</tr>
</tbody>
</table>
TIER III COURSES [T] (3 hours)

This upper-division requirement is designed to assist students in integrating information from diverse sources and to construct knowledge in a subject and discipline apart from their majors. Tier III courses teach students how to approach a new field of knowledge, as they will most likely be required to do in their future professional lives, and to find their way successfully. Tier III courses require students to gather, synthesize, and think critically about information, and to write about topics previously unfamiliar to them. The aim is to help students become lifelong, self-directed learners.

Many Tier III courses employ an interdisciplinary or multidisciplinary approach to topical issues or other subject matter, while others are grounded in specific methodologies from the sciences, social sciences, arts and humanities.

TIER III courses may address all six of the learning goals or focus on only a few. Students engage in challenging learning projects in which they effectively frame and solve problems, demonstrate knowledge of research and information retrieval strategies, and evaluate sources and data outside the familiar knowledge domains of their majors.

Tier III courses have as a general prerequisite 60 hours of course work; students should be aware that specific courses may carry additional prerequisites.

[D] designates courses which also fulfill the American Diversity Requirement.

TIER III COURSES GROUNDED IN SCIENTIFIC METHODOLOGIES

Preparatory work for these courses should include study of the basic scientific principles of the physical and biological sciences, as well as a solid background in mathematics. Students are expected to understand the fundamental structures of matter and the principles governing the transformations of matter and energy. Familiarity with intellectual history or the history of science may also be useful.

TIER III COURSES USING SOCIAL SCIENCE METHODS

These courses address many current issues as well as topics of perennial interest. Preparatory work for these courses should include study of social science methods of analysis and some familiarity with historical and cultural studies. Basic understanding of the roles of class, gender, and ethnicity, of the nature and functions of social institutions, and of political and economic processes is also useful.
Anth 468 Sex, Evolution, and Human Nature (Prereq 3 hours Anth or Biol)
Anth 469 Genes, Culture, and Human Diversity
Asia/Hist 479 History of East Asian Economic Development Since 1945
CES 403 Cultural Issues in Psychology
CES 405/Engl 410 Cultural Criticism and Theory
CES/W St 411 [D] Asian Pacific American Women (Prereq CES or W St course)
CES 426 Workers Across North America
CES/W St 435 [D] African American Women in US Society (Prereq CES 101, W St 200; Rec CES 131)
CES/PoliSci 474 African Politics
CES 440 [D] Social Justice and American Culture
CES 444 White Power Movements and Ideologies
CES 453 [D] Health Issues for Chicanos/as
CES/W St 454 La Chicana in U.S. Society (Prereq junior standing)
CES/Clin 457 [D] Chicano/Latino Psychology (Prereq Psych 105, EdPsy 401, Soc 101, H D 101, or interview with instructor)
CES 465 Race, Science, and Society
CES 470 Federal Native American Resource Settlement Models
CES 475/Hist 408 [D] Indians of the Northwest
Com 471/CES 404 [D] Stereotypes and the Media
Com/St/CES 421 Intercultural Processes in Global Contexts
Cpt S 401 Computers and Society (Prereq Phil 260 or Soc 101; completion of writing portfolio)
Crm/J/W St 403 Violence Toward Women (Prereq Crm J 101 or W St 200)
Crs 431 [D] The Demographics of American Diversity (Prereq junior standing)
Dis/St 489 [D] Disability and Society
Econ 428 Global Capitalism Today: Perspectives and Issues (Prereq GenEd 111; EconSt 101 or 102)
EconSt 430 Managing the Global Environment
H D 403 Families in Poverty (Prereq H D 101, 204 or 6 hours in H D or social sciences)
Hist 409 American Environmental History
Hist 425 The City in History
Hist 426 Workers Across North America
Hist 435 European Expansion Overseas, 1400-1800
Hist 436 Imperialism in the Modern World
Hist 444 The Renaissance
Hist 453 The Great War 1914 - 1920
Hist/Rus 466 History of the Cold War, 1944-present
Hist/Asia 473 The Middle East and the West
Hist/Asia 479 History of East Asian Economic Development Since 1945
Hist 483 Technology and Social Change to 1950
Hist 491 History of World Trade
Hist 492 Cultural Appetites: Food in World History
Hist 494 Global Environmental History
Hist 495 Space, Place, and Power in History: Historical Geography in Global Perspective
Jour 405 The Costs of Free Speech (Prereq junior standing)
Pol S 428 Issues in Political Psychology (Prereq Pol S 101 or Psych 105)
Pol S 430 The Politics of Natural Resource and Environmental Policy
Psych 492 Psychology of Language (Prereq Psych 105)
Psych 403 Cultural Issues in Psychology
Soc 415 Ecology of Human Societies (Prereq Anth 101 or Soc 101; ES/ERP 101)
Soc 430 Society and Technology
Soc 433 Urbanization and Community Organization (Prereq 3 credits 300-400-level social science)
Soc 442 Political Sociology
Soc 455 Human Values (Prereq Psych 105 or Soc 101; Psych 350)
Soc 474 Collective Behavior and Social Movements (Prereq three 300-400-level Soc or Pol S courses)
W St 406 Women and Work (Prereq W St 200)
W St/CES 408 [D] Introduction to Critical Race Feminism (Prereq W St 200 or CES 101)
W St 460 Gender, Race, and Nature in America (Prereq W St 200 or 300)
W St/Soc 484 [D] Lesbian and Gay Studies (Prereq Soc 101, 102, or W St 200)

TIER III COURSES EMPLOYING THE METHODS OF THE ARTS AND HUMANITIES

These courses represent the variety of disciplines in the arts and humanities and the huge range of subject matter addressed in them. Useful preparatory work includes the history, criticism, and practice of the arts. Students are expected to have some historical perspective on the major cultural traditions of the world and to be familiar with common forms of analysis and interpretation in these disciplines.

Am St 410 Cities in Fiction
Am St/Engl 471 Cultural Politics Since World War II
Am St/Engl 472 Ecological Issues and American Nature Writing
Am St/Engl 475 [D] Arts in American Cultures
Am St 473 Digital Diversity
Am St 475 [D] Digital Diversity
AMT 408 Visual Analysis and Aesthetics
Arch 428 Architecture and Culture in the Islamic World
Engl/W St 409 Women Writers in the American West
Engl 415 Traditions of Comedy and Tragedy
Engl 419 The Twentieth Century Novel
Engl/Am St 470 Literature and Culture of the American West
For L 410 Issues in World Film and literatures
Fren 410 French Film in Translation
Fren 430 Topics in French/Francophone Literature (Prereq three literature or humanities courses)
Hum 410 Love in the Arts
Hum 450 Representations of the Holocaust
Phil 413 Mind of God and the Book of Nature: Science and Religion
Phil 415 The Experience of Illness in Society: Moral Problems in Health Care
Phil/W St 425 Philosophy and Feminism
Phil 431 Aesthetics and Philosophy of Art
Phil 435 East/West Philosophy of Architecture
Rus 410 Russian Film
Rus 430 Russian Literature
Span 420 Cultural Topics
Departments, Requirements, and Courses

Department of Aerospace Studies

www.det905.com  
Kruegel 417  
509-335-5598

Colonel M. Dorchele; Captain W. Babbitt, Captain S. Babbitt; Captain G. Mendosa.

The Department of Aerospace Studies (Air Force Reserve Officer Training Corps) offers eligible students education and training which lead to commissions as second lieutenants in the U.S. Air Force. Air Force ROTC students may major in any degree program offered at Washington State University. They supplement their major curriculum with the specialized aerospace studies courses in order to prepare for active commissioned service.

Students may participate in either the four-year or three-year program. The four-year student completes the General Military Course (two years), four-week summer training (Aero 291), and the Professional Officer Course (two years). The three-year student attends a special six-week summer field training (Aero 292) and then completes the Professional Officer Course.

General Military Course (GMC). This sequence of courses consists of four 1-credit academic and 2-credit lab courses normally taken during the freshman and sophomore years. The GMC sequence prepares the student for field training and the Professional Officer Course, and forms the basis for the four-year program. The sequence may be adapted to fit individual schedules.

Professional Officer Course (POC). This sequence, beginning with Aero 311, consists of four 3-credit academic courses and 2-credit lab courses normally taken during the student’s last two years in the university. Entry into the POC is competitive. Students must normally complete field training the summer before they enter the POC.

Four-year students compete for entry during their last year in the GMC. Other students should begin the application process early in the fall semester before they plan on attending field training.

Financial Aid and Scholarships. Air Force ROTC offers enrolled GMC students the opportunity to compete for three-and-one-half-, three-, two-and-one-half-, and two-year scholarships which pay tuition, fees, and a $450 per semester book allowance, as well $300 per month for contracted Freshman, $350 per month for contracted Sophomores, $450 per month for contracted Juniors, and $500 per month for contracted Seniors.

A minor in aerospace studies requires at least 16 hours, nine of which must be 300-400-level, from: Aero 101, 102, 201, 202, 311, 312, 411, 412.

Minors

Aerospace

A minor in aerospace studies requires at least 16 hours, 9 of which must be 300-400-level taken in residence at WSU or through WSU-approved education abroad or educational exchange courses, from: Aero 101, 102, 201, 202, 311, 312, 411, 412.

Description of Courses

Aerospace Studies Courses

Aero 101 The Foundations of USAF I 1 Prereq c// in Aero 103 required. Introduces students to the Air Force and AFROTC.

Aero 102 The Foundations of USAF II 1 Prereq c// in Aero 103 required. Introduces students to the Air Force and AFROTC.

Aero 103 Leadership Laboratory I 2 (0-4) May be repeated for credit; cumulative maximum 4 hours. Leadership principles, military experience, and management practice; 2 hours laboratory and 2 hours required physical training.

Aero 201 The Evolution of USAF Air and Space Power I 1 Prereq c// in Aero 103 required. Examines general aspects of air and space power through a historical perspective. Leadership Laboratory is mandatory for AFROTC.

Aero 202 The Evolution of USAF Air and Space Power II 1 Prereq c// in Aero 203 required. Examines general aspects of air and space power through a historical perspective. Leadership Laboratory is mandatory for AFROTC.

Aero 203 Leadership Laboratory II 2 (0-4) May be repeated for credit; cumulative maximum 4 hours. Leadership principles, military experience, and management practice; 2 hours laboratory and 2 hours required physical training.

Aero 291 Four-Week Field Training Course 2 Prereq Aero junior standing; Aero 101, 102, 201, 202; by interview only. Intensive study of military education, experience in leadership and management at an active Air Force installation. S, F grading.

Aero 292 Six-Week Field Training Course 6 Prereq junior standing; by interview only; applicants must apply at least six months in advance. Intensive study of academic core course work and military education at an active Air Force installation. S, F grading.

Aero 499 Special Problems V 1-4 May be repeated for credit. By interview only.

311 Air Force Leadership Studies I 3 Prereq c// in Aero 313 required. Examines general aspects of air and space power through a historical perspective.

312 Air Force Leadership Studies II 3 Prereq c// in Aero 313 required. Examines general aspects of air and space power through a historical perspective.

313 Leadership Laboratory III 2 (0-4) May be repeated for credit; cumulative maximum 4 hours. Leadership principles, military experience, and management practice; 2 hours laboratory and 2 hours required physical training.

391 Private Pilot Ground School 2 All aspects of preparation for the FAA private pilot written test. Cooperative course taught by UI (Aero 391), open to WSU students.

392 Instrument Pilot Ground School 2 Prereq Aero 391 or by interview only. All ground-based aspects of instrument flying to prepare students to take the FAA instrument pilot written test. Cooperative course taught by UI (Aero 392), open to WSU students.

411 National Security Affairs/Preparation for Active Duty I 3 Prereq c// in Aero 413 required. Examines general aspects of air and space power through a historical perspective.

412 National Security Affairs/Preparation for Active Duty II 3 Prereq c// in Aero 413 required. Examines general aspects of air and space power through a historical perspective.

413 Leadership Laboratory IV 2 (0-4) May be repeated for credit; cumulative maximum 4 hours. Introduces students to leadership principles, military experience, and management practice; 2 hours laboratory and 2 hours required physical training.

485 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

Program in Aging

Johnson Tower 501  
509-335-9540

Chair, M. Young.

The Program in Aging offers an interdisciplinary curriculum in gerontology, including courses in the social and health sciences, and offers a minor in aging and a certificate in gerontology. The program is designed to achieve the following objectives:
(1) To provide a body of knowledge which individuals may use in better understanding the processes and implications of aging in their own lives and for participation in community decision making regarding the scope, structure, and nature of programs for the elderly;

(2) To enhance the qualifications of students in the helping services, health sciences, communication, education, and business, who are planning careers which involve working with or providing services to older persons;

(3) To prepare students for graduate and professional training in gerontology; and

(4) To further university and societal goals of equity for persons of all ages.

Minors

Aging

The minor in aging requires a minimum of 18 hours of credit including H D 203 or 305; FSHN 130; Psych 363; Soc 356, and approved aging-related courses (6 hours) to be selected from a list of recommended courses available from the program chair. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Students must obtain approval of their course selection from the program chair. To register for the Program in Aging, students need to contact the program chair, M. Young at 509-335-9203.

Certificates

Gerontology

A certificate in Gerontology is granted to students who complete the minor in aging with a GPA of at least 2.5 and an internship experience. The internship with a focus on aging must be completed either in human development or alcohol studies and may require additional prerequisites. All internships must be approved by the chair of the program prior to their initiation.

Description of Courses

Agricultural and Food Systems

Agricultural and Food Systems (AFS) degree program at WSU provides a comprehensive education that prepares students for careers in agricultural and food systems. The program offers a Bachelor of Science degree and a Master of Science degree in Agriculture. Graduates of the AFS degree program are well-prepared for careers in the agricultural, food, and related industries.

Courses:

1. Bachelor of Science in Agricultural and Food Systems (Pullman campus)
   - This degree program is designed to provide students with a solid foundation in agricultural and food sciences, including learning to work with and in the complexity of agriculture and food systems. Students take a core set of courses in order to develop a broad interdisciplinary background while also studying specific subjects that prepare graduates for their chosen fields.

2. Master of Science in Agriculture (Pullman campus)
   - This degree program offers advanced study in various areas of agricultural and food sciences, including specific areas such as crops, animals, food, technology, communication and/or education.

Requirements:

- Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.
- Students must obtain approval of their course selection from the program chair.

Schedules of Studies

Students must complete the American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

AGRICULTURAL BUSINESS AND TECHNOLOGY SYSTEMS - AGRI-FOOD BUSINESS MANAGEMENT OPTION

First Year

First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>AFS 101</td>
<td>3</td>
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<tr>
<td>Chem 101 [P] (GER)</td>
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<tr>
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<tr>
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Second Term

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Final Year

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<td>AFS 363</td>
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<td>AFS 486</td>
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<tr>
<td>AFS 487</td>
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</table>

Note: Honors students complete Honors requirements in place of GERs.
Agricultural and Food Systems

Chem 102 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] or 111 [A] (GER) 3

**Second Year**

**First Term**
- A S 101 3
- AFS 201 3
- Arts & Humanities [H,G] (GER) 3
- Biol 120 [B] (GER) 4
- EconS 350 3

**Second Term**
- Biol 102 [B] (GER) 4
- Chem 102 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] or 111 [A] (GER) 3
- Elective 3

**Third Year**

**First Term**
- A S 101 3
- AFS 201 3
- Arts & Humanities [H,G] (GER) 3
- Biol 120 [B] (GER) 4
- EconS 355 [S] (GER) 3

**Second Term**
- ComS 102 [C] or H D 205 [C] (GER) 3
- SoIS 201 [B] (GER) 3
- Complete Writing Portfolio

**Fourth Year**

**First Term**
- AFS 401 3
- Biol 372 or NATRS 300 [B] (GER) 3-4
- CropS 360 [I] (GER) 3
- EconS 352 3

**Second Term**
- CRM 336 [S] (GER) 3
- Seminar 1
- Tier III [T] (GER) 3
- Electives 6

**AGRICULTURAL BUSINESS AND TECHNOLOGY SYSTEMS - AGRI-FOOD PRODUCTION MANAGEMENT OPTION (120 HOURS)**

The Agri-Food Production Management option is designed for students who wish to prepare for careers requiring flexible, broad training in agriculture. A maximum number of electives is permitted to enable the student to emphasize one or two fields, or otherwise to tailor the curriculum to fit particular needs. Students desiring to qualify as conservationists in the Natural Resources Conservation Service should have 12 hours of soils. To qualify as soil scientists, a total of 15 hours in soils is required. SoIS 201, 301, 413, 421, and 451 are recommended. A total of 46 agriculture credits are required. 15 credits must be from one department and 9 credits from another department.

**First Year**

**First Term**
- AFS 101 3

A total of 46 agriculture credits are required. A total of 46 agriculture credits are required. See the program or your advisor for options within required agriculture courses. Consult with a School of Communication advisor before registering for elective courses. Specialized programs patterned for individual career aspirations may be developed in conjunction with the head of the School of Communication or a designated representative. For complete information, visit afs.wsu.edu.

**First Year**

**First Term**
- A S 101 3
- AFS 201 3
- Chem 101 [P] (GER) 4
- ComS 102 [C] or H D 205 [C] (GER) 3
- Engl 101 [W] (GER) 3

**Second Term**
- Arts & Humanities [H,G] (GER) 3
- Chem 102 [P] (GER) 4
- Engl 201 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Math 107 or 201 3 or 4

**Second Year**

**First Term**
- AFS 201 3
- Biol 106 [B] (GER) 4
- Com 245 3
- EconS 101 [S] (GER) 3
- Stat 212 [N] (GER) 4

**Second Term**
- Biol 107 or Biol 120 [B] (GER) 4
- Com 295 3
- GenEd 111 [A] (GER) 3
- Psych 105 [S] (GER) 3
- SoilS 201 [B] (GER) 3

**Complete Writing Portfolio

**Third Year**

**First Term**
- AFS 301 3
- AgTM 305 3
- Hort 202 4
- Stat 212 [N], Math 140 [N], 171 [N], or 202 [N] (GER) 4
- Electives 3

**Second Term**
- AgTM 315 3
- AgTM 436/437 4
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- 300-level Hort/CropS Elective 3
- Electives 3

**Fourth Year**

**First Term**
- AFS 401 3
- Biol 372 or NATRS 300 [B] (GER) 3-4
- Electives 5-6

**Second Term**
- CRM 336 [S] (GER) 3
- Tier III Course [T] (GER) 3
- Seminar 1
- Electives 5

**AGRICULTURAL BUSINESS AND TECHNOLOGY SYSTEMS - COMMUNICATION OPTION (120 HOURS)**

Students in this major and option gain a science-based overview of agriculture in combination with one of several program options in Communications. This option is offered in cooperation with the School of Communication. Students declaring this major should make known that to qualify as soil scientists, a total of 15 hours in soils is required. SoilS 201, 301, 413, 421, and 451 are recommended. A maximum number of electives is permitted to enable the student to emphasize one or two fields, or otherwise to tailor the curriculum to fit particular needs. Students desiring to qualify as conservationists in the Natural Resources Conservation Service should have 12 hours of soils. To qualify as soil scientists, a total of 15 hours in soils is required. SoIS 201, 301, 413, 421, and 451 are recommended. A total of 46 agriculture credits are required. 15 credits must be from one department and 9 credits from another department.

**First Year**

**First Term**
- AFS 101 3

**Second Year**

**First Term**
- A S 101 3
- AFS 201 3
- Arts & Humanities [H,G] (GER) 3
- Biol 120 [B] (GER) 4
- EconS 355 [S] (GER) 3

**Second Term**
- ComS 102 [C] or H D 205 [C] (GER) 3
- CropS 102 3
- CropS 360 [I] (GER) 3
- NATRS 312 [S,D] (GER) 3
- SoilS 201 [B] (GER) 3

**Complete Writing Portfolio

**Third Year**

**First Term**
- AFS 301 3
- AgTM 305 3
- Hort 202 4
- Stat 212 [N], Math 140 [N], 171 [N], or 202 [N] (GER) 4
- Electives 3

**Second Term**
- AgTM 315 3
- AgTM 436/437 4
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- 300-level Hort/CropS Elective 3
- Electives 3

**Fourth Year**

**First Term**
- AFS 401 3
- Biol 372 or NATRS 300 [B] (GER) 3-4
- Electives 5-6

**Second Term**
- CRM 336 [S] (GER) 3
- Tier III Course [T] (GER) 3
- Seminar 1
- Electives 5

**AGRICULTURAL BUSINESS AND TECHNOLOGY SYSTEMS - TECHNOLOGY OPTION (121 HOURS)**

Students in this major and option gain a science-based overview of agriculture and food systems, with
a focus on technology and its use. The Technology Option prepares students for the application of technology to operations or management in agriculture. The areas of application are: precision agricultural operations, services, management of agricultural businesses, sales, production operations, and promotional work in domestic and international agricultural communities.

Emphasis is placed upon the practical application of technology to agricultural enterprises. The curriculum prepares students to own, operate, and manage their own enterprises or to provide services for private or governmental entities. Agricultural technology and management combines students' inherent creativity and interest in physical and biological sciences, mathematics, business, and other subjects and the desire to develop innovative solutions to a variety of agricultural problems.

A wide variety of agricultural technology and technical management courses is available to non-majors in support of programs in other departments. Many courses can be used as electives by students who wish to explore the field or to use the information for other personal reasons.

The Technology Option requires a minimum of 122 credit hours for graduation. Of these, at least 40 hours including 12 hours of Ag electives must be courses numbered 300 or above. The department also offers a minor in Technology.

**First Year**

**First Term**
- AFS 101 3
- Chem 101 [P] (GER) 4
- EconS 101 [S] (GER) 3
- GenEd 110 [A] (GER) 3
- Math 201 3

**Second Term**
- A S 101 3
- Biol 102 [B] (GER) 4
- Chem 102 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 111 [A] (GER) 3

**Second Year**

**First Term**
- Acctg 230 3
- AFS 201 3
- AgTM 305 3
- AgTM 314 3
- Biol 120 [B] (GER) 4

**Second Term**
- Biol 372 or NATRS 300 [B] (GER) 4 or 3
- ComSt 102 [C] or HD 205 [C] (GER) 3
- Crops 102 3
- SoilS 201 [B] (GER) 3
- Stat 212 [N], Math 140 [N], 171 [N], or 202 [N] (GER) 3

**Complete Writing Portfolio**

**Third Year**

**First Term**
- AFS 301 3
- AgTM 330 3
- CRS 336 [S] (GER) 3
- MgtOp 301 3
- Elective [H,G,S,K] (GER) 3

**Second Term**
- AgTM 315 3
- AgTM 412 3

**Fourth Year**

**First Term**
- AFS 401 3
- Chem 101 [P] (GER) 4
- ComSt 102 [C] or HD 205 [C] (GER) 3
- Engl 101 [W] (GER) 3

**Second Term**
- AgTM 405 2
- AgTM 416 3
- Engl 402 [W] (GER) 3
- Tier III Course [T] (GER) 3
- Electives 3

**AGRICULTURAL EDUCATION (141 HOURS)**

The agricultural education major prepares students to teach high school agricultural education. A major in agricultural education includes a minimum of 45 hours in agricultural sciences.

This course of study leads to the degree of Bachelor of Science in Agricultural and Food Systems with a major in Agricultural Education. The program includes minimum requirements for initial teacher certification.

Agricultural Education electives must complete at least 6 hours in Communication Proficiency, 3 hours in Arts and Humanities, 6 hours in Social Sciences, 3 hours in Mathematics, 8 hours in Biological Sciences, 8 hours in Physical Sciences, 42 hours in professional education. The program requires a minimum of 134 semester hours for graduation. Students must take all core agriculture courses plus 15 additional credits in agriculture from the College of Agricultural, Human, and Natural Resource Sciences. Students must also meet the College of Education certification requirements for entry into the program.

Students must take all core agriculture courses plus 16 additional credits in technical agriculture from the College of Agricultural, Human, and Natural Resource Sciences. (Student teaching requires Ag Ed 407 and T & L 415.)

For complete information, visit afs.wsu.edu/majors/ag-ed.htm.

**First Year**

**First Term**
- A S 101 3
- AFS 101 3
- Chem 101 [P] (GER) 4
- ComSt 102 [C] or HD 205 [C] (GER) 3
- Engl 101 [W] (GER) 3

**Second Term**
- AgTM 201 3
- Chem 102 [P] (GER) 4
- GenEd 110 [A] (GER) 3
- Psych 105 [S] (GER) 3
- Stat 212 [N] / Math Proficiency [N] (GER) 4

**Second Year**

**First Term**
- AFS 201 3
- Biol 106 [B] (GER) 4
- EconS 101 [S] (GER) 3
- Engl 201 [W] (GER) 3

**Second Term**
- Ag Elective 3
- EconS 350 or 351 3
- T & L 464 3
- T & L 465 3
- T & L 466 2

**Organic Agriculture Systems (120 Hours)**

This exciting new major is the first in the United States, and we are pleased to offer it at Washington's land-grant, research university. Students in this major take a broad variety of science-based agricultural courses in the natural, environmental, economic and social sciences as well as a number of dedicated organic agriculture courses. WSU has over 50 faculty with research in organic agriculture, and there is a three-acre certified organic teaching farm (primarily vegetables and some fruit) used in the program. Students have the opportunity to tailor their program to specific areas of emphasis, such as organic animal and dairy production, economics and marketing, crop production, food science and human nutrition, pest management, soil management, and others in consultation with their advisor. Discussion of focus areas with your advisor should be held as early as possible.

**Web site:** afs.wsu.edu/majors/organic.htm.
The major is a blend of classroom instruction and field experience that is tailored to the eventual employment goals of the student participant. Men and women who can evaluate and diagnose pest problems and recommend economically and ecologically sound corrective actions are in great demand. Excellent employment opportunities exist with state, federal, and international agricultural, environmental, and regulatory agencies, agrichemical companies, agricultural/environmental consulting firms, food processing, forest product, and vegetable and seed companies, and a wide range of other agribusiness enterprises.

The pest management systems major includes a professional internship. This “on-the-job” training is a joint effort between Washington State University and various industries, agricultural organizations, and governmental agencies, the choice of training received being dependent upon a student’s interests and available job opportunities. The internship provides prospective pest management practitioners opportunities to practice skills that will be required of an individual once they enter into their chosen profession.

### Fourth Year

**First Term**
- AFS 401 3
- Seminar (CropS 412) 1
- Stat 212 [N] (GER) 4
- Tier III Course [T] (GER) 3
- Elective 2-4

**Second Term**
- IPM 462 [M] 3
- Elective 7

### PLANT AND SOIL SYSTEMS - CROPPING SYSTEMS  
(123 HOURS)

The major in Plant and Soil Systems provides students the opportunity to specialize in plant or soil management for food, fiber, and/or ornamental production, while maintaining a big picture perspective of how their disciplinary work fits within larger agricultural and food systems. While grounded in the range of core classes in natural, biological, physical, economic and social sciences, students can choose from among three focus areas in the following options: Cropping Systems, Horticulture Systems, or Soil Management.

This major is for students who are interested in actively managing soil and/or plants, such as being a certified professional in crop or soil sciences (including certified crop advisor), running a plant production enterprise such as an agronomic or horticultural farm, landscaping business, greenhouse production facility, etc., and/or working on the ground or in policy arenas toward conservation.

Students in the Cropping Systems option will focus on agronomic cropping systems. Students interested in genetics and molecular biology should also explore the Crop Science degree program elsewhere in this catalog.

**First Year**

**First Term**
- AFS 101 3
- Chem 101 [P] or 105 [P] (GER) 4
- CropS 102 3
- Math 107 or 201 3 or 4

**Second Term**
- Biol 106 [B] (GER) 3
- CropS 105 3
- CRS 336 [S] (GER) 3
- Elective 6

**Second Year**

**First Term**
- AFS 201 3
- ComS 102 [C] or H D 205 [C] (GER) 3
- CropS 102 3
- ES/RP 174 3
- IPM 201 3
- Elective 3

**Second Term**
- Biol 107 [B] or 120 [B] (GER) 4
- Chem 102 [P] or 106 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] or 111 [A] (GER) 3

**Third Year**

**First Term**
- AFS 301 3
- Biol 320 4
- CropS 305 3
- CropS 360 [L] (GER) 3
- PI P 429 3

**Second Term**
- Biol 332 4
- Biol 372 or NATRS 300 [B] (GER) 3 or 4
- Entom 340 or Entom 343 [M] and 344 [M] 3 or 5
- IPM 452 2
- Elective 3
- Summer Session - IPM 399 3

**PEST MANAGEMENT SYSTEMS  
(120 HOURS)**

The major in Pest Management Systems is a multidisciplinary course of study whose goal is to produce individuals who can approach pest population management from a holistic perspective. Students will acquire an awareness of the complexity of relationships within agricultural, aquatic, and urban ecosystems, understand the effects of external factors influencing these systems, and are taught how to devise effective pest management measures without incurring undue risks to human or environmental health. Course offerings focus on pest biology, phenology, and ecology; biology and behavior of natural enemies; the full spectrum of acceptable management methods used to suppress pests; the importance of the systems approach to problem solving; economics of crop production; and meteorological influences on ecosystem components.

**Third Year**

**First Term**
- AFS 301 3
- Biol 320 4
- CropS 305 3
- CropS 360 [L] (GER) 3
- PI P 429 3

**Second Term**
- Biol 332 4
- Biol 372 or NATRS 300 [B] (GER) 3 or 4
- Entom 340 or Entom 343 [M] and 344 [M] 3 or 5
- IPM 452 2
- Elective 3
- Summer Session - IPM 399 3

**Fourth Year**

**First Term**
- AFS 401 3
- Seminar (CropS 412) 1
- Stat 212 [N] (GER) 4
- Tier III Course [T] (GER) 3
- Elective 2-4

**Second Term**
- IPM 462 [M] 3
- Elective 7

**First Year**

**First Term**
- AFS 101 3
- Chem 101 [P] or 105 [P] (GER) 4
- CropS 102 3
- Math 107 or 201 3 or 4

**Second Term**
- Biol 106 [B] (GER) 3
- CropS 105 3
- CRS 336 [S] (GER) 3
- GenEd 110 [A] or 111 [A] (GER) 3

**Second Year**

**First Term**
- AFS 201 3
- ComS 102 [C] or H D 205 [C] (GER) 3
- CropS 102 3
- ES/RP 174 3
- IPM 201 3

**Second Term**
- Biol 107 [B] or 120 [B] (GER) 4
- Chem 102 [P] or 106 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] or 111 [A] (GER) 3

**Third Year**

**First Term**
- AFS 301 3
- Biol 320 4
- CropS 305 3
- CropS 360 [L] (GER) 3
- PI P 429 3

**Second Term**
- Biol 332 4
- Biol 372 or NATRS 300 [B] (GER) 3 or 4
- Entom 340 or Entom 343 [M] and 344 [M] 3 or 5
- IPM 452 2
- Elective 3
- Summer Session - IPM 399 3

**Fourth Year**

**First Term**
- AFS 401 3
- Seminar (CropS 412) 1
- Stat 212 [N] (GER) 4
- Tier III Course [T] (GER) 3
- Elective 2-4

**Second Term**
- IPM 462 [M] 3
- Elective 7
Third Year

First Term
AFS 301 3
Biol 372 or NATRS 300 [B] (GER) 3 or 4
CropS 305 3
ES/RP 174 3
SoilS 301 [M] 3

Second Term
AFS 445, CropS 403, or SoilS 345 3
CRS 336 [S] (GER) 3
SoilS 441 3
Stat 212 [N] (GER) 4
Pest Mgt Elective 3

Fourth Year

First Term
AFS 401 3
Biol 320 4
CropS 302 or Hort 320 3
CropS 498 3
SoilS 442 3

Second Term
300-400-level EconS Elective or SoilS 468 3 or 4
CropS 411 [M] 3
CropS 412 1
CropS 444 2
CropS 445 [M] 2
Tier III Course [T] (GER) 3

PLANT AND SOIL SYSTEMS - HORTICULTURE SYSTEMS (120 HOURS)
The major in Plant and Soil Systems provides students the opportunity to specialize in plant or soil management for food, fiber, and/or ornamental production, while maintaining a big picture perspective of how their disciplinary work fits within larger agricultural and food systems. While grounded in the range of core classes in natural, biological, physical, economic and social sciences, students can choose from among three focus areas in the following options: Cropping Systems, Horticulture Systems, or Soil Management.
This major is for students who are interested in actively managing soil and/or plants, such as being a certified professional in crop or soil sciences (including certified crop advisor), running a plant production enterprise such as an agronomic or horticultural farm, landscaping business, greenhouse production facility, etc., and/or working on the ground or in policy arenas toward conservation.

First Term
AFS 101 3
Chem 101 [P] or 105 [P] (GER) 3 or 4
CropS 102 3
Math 107 or 201 3 or 4

Second Term
Chem 345 4
EconS 101 [S] (GER) 3
Hort 202 4
Hort Minor Elective 3
Phil 260 [H] (GER) 3
Complete Writing Portfolio

Third Year

First Term
AFS 301 3
Biol 320 4
Biol 372 or NATRS 300 [B] (GER) 3 or 4
CropS 305 3
ES/RP 174 3
Second Term
CRS 336 [S] (GER) 3
Hort Minor Elective 3
SoilS 441 3
Stat 212 [N] (GER) 4

Fourth Year

First Term
AFS 401 3
CropS 360 [I] (GER) 3
CropS 445, CropS 403, SoilS 345, or other 3
Hort 399 3
Hort Minor Elective 3
Second Term
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Hort Minor Electives 4 - 8
Seminar 1
Tier III Course [T] (GER) 3
Electives 2 - 3

PLANT AND SOIL SYSTEMS - SOIL MANAGEMENT OPTION (122 HOURS)
The major in Plant and Soil Systems provides students the opportunity to specialize in plant or soil management for food, fiber, and/or ornamental production, while maintaining a big picture perspective of how their disciplinary work fits within larger agricultural and food systems. While grounded in the range of core classes in natural, biological, physical, economic and social sciences, students can choose from among three focus areas in the following options: Cropping Systems, Horticulture Systems, or Soil Management.
This major is for students who are interested in actively managing soil and/or plants, such as being a certified professional in crop or soil sciences (including certified crop advisor), running a plant production enterprise such as an agronomic or horticultural farm, landscaping business, greenhouse production facility, etc., and/or working on the ground or in policy arenas toward conservation.

First Year

First Term
AFS 101 3
Chem 101 [P] or 105 [P] (GER) 3 or 4
CropS 102 3
Math 107 or 201 3 or 4

Second Term
Biol 106 [B] (GER) 4
Chem 102 [P] or 106 [P] (GER) 3
ComSt 102 [C] or H D 205 [C] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] or 111 [A] (GER) 3

Third Year

First Term
AFS 401 3
CropS 403, Entom 340, or PI P 429 3
SoilS 412 1
SoilS 498 3
Tier III Course [T] (GER) 3

Fourth Year

First Term
AFS 401 3
Biol 320 4
SoilS 431 3
SoilS 442 3
SoilS 451 [M] 3
Second Term
CropS 302 or Hort 320 3
CropS 305, Entom 340, or PI P 429 3
SoilS 412 1
SoilS 498 3
Tier III Course [T] (GER) 3

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Certificates

Organic Agriculture (Pullman and Distance Delivery)

The Certificate in Organic Agriculture is an 18-credit undergraduate program that can be taken along with a major in another field, or as a stand-alone educational experience. Working professionals, other non-degree-seeking students, as well as current students in other majors at WSU will be able to learn the fundamentals in a highly focused program through on-line and classroom venues. Holders of the Certificate in Organic Agriculture will be well prepared to work on or develop their own farm, will be qualified for employment opportunities with non-profit organizations and government agencies involved in environmental and food safety, as well as private sector food processing, marketing, organic certification, and product development industries.

The 18-credit certificate program is designed with two core courses required for all students, a minimum of 3 credits of “experiential learning”, plus a minimum of nine additional credits selected from a range of courses. All courses already exist as permanent courses, and the certificate can be fulfilled through in-class participation on the Pullman campus or through on-line delivery.

Requirements: SoilS 101 and 404; SoilS 480 (for on-campus students) or CropS, EconS 497, Hort 399, SoilS 498 (for off-campus students). 9 credits from: EconS 101, 102, CropS 102, CropS 360, CRS 336, CRS 435, FSHN 130, FSHN 220, NATRS 300, SoilS 301, 441, 445, or 490.

Sustainable Agriculture

The Graduate Certificate in Sustainable Agriculture provides post-baccalaureate students with an interdisciplinary understanding of practices and current issues in sustainable agriculture, along with the science that makes it work. Students who earn the Graduate Certificate in Sustainable Agriculture may take these skills into all industries and agencies involved in the food chain; from production, processing, and delivery to policy, regulation, and education. Students in any WSU graduate degree program are eligible for the certificate if they meet the prerequisites of the courses needed for the certificate. Students pursuing a graduate certificate may only accumulate 6 credits toward a master's degree and 9 credits toward a Ph.D. degree.

Students not in degree programs are also eligible to earn the certificate by enrolling as non-degree students, again providing that they meet the prerequisites of the courses needed for the certificate. Apply for admission to an academic department, indicating your intention to be classified as a part-time, certificate graduate student.

Description of Courses

Agricultural and Food Systems Courses

AIF

105 Organic Gardening and Farming 3 Same as SoilS 101.
115 Introduction to Agricultural Communications 1 Agricultural communications and target media aimed specifically at agricultural producers and the agricultural industry.
201 Systems Skills Development for Agricultural & Food Systems 3 (2-2) Prereq AFS 101; Math 107 or Stat 212; Chem 101 or 105; Biol 102 or 106. Development of tools and skills in building, evaluating and applying model systems in agricultural production, food manufacturing and distribution in rural society and society as a whole; focus on the types of systems, construction and analysis.
301 Systems Development and Analysis in Agricultural & Food Systems 3 (2-2) Prereq AFS 201; Stat 212 or 412; junior standing. Analysis, design and construction of integrated agricultural systems.
401 Advanced Systems Analysis and Design in Agricultural & Food Systems 3 (2-2) Prereq AFS 301; Stat 212 or 412; senior standing; Rec Engl 402. Problem solving methodologies as applied to integrated agricultural systems analysis and design problems; strong emphasis on teamwork.
416 (SoilS 404) Sustainable Small Farming and Ranching 3 Introduction to small acreage production systems, evaluation of personal and family goals, land evaluation, business planning, marketing options, regulations, and community resources. Cooperative course taught by UI (Ag 404), open to WSU students.
417 (SoilS 403) Agricultural Entrepreneurship 3 Designed for students who are interested in starting an agricultural enterprise or gaining knowledge of the process. Cooperative course taught by UI (Ag 404), open to WSU students.
445 (SoilS) Field Analysis of Sustainable Food Systems 3 Experiential course visiting farms, food processing and marketing facilities to develop understanding of issues and relationships of sustainable food systems. Cooperative course taught jointly by WSU and UI (AG 445/545).

Agricultural Education Courses

Ag Ed

342 Methods of Teaching Agriculture 3 Prereq T & L 303 and admitted to College of Education. Methods and strategies for teaching agricultural science.
401 Adult Programs and Development 3 Organizing and conducting adult programs in agriculture, management, program planning, learning styles, resources; strategies for formal and non-formal adult programs.

407 Student Teaching in Agricultural Education V 4-16 Prereq Ag Ed 342, 442, 471; make application; pay certification fees; complete all other coursework for degree and teacher certification; receive fingerprint clearance from WSP, FBI, and Office of Professional Practices; maintain 2.5 GPA overall and in endorsement and professional core classes; placement by interview only. Supervised teaching in public schools including seminars reflecting effective teaching. S, F grading.
440 [M] Principles of Career and Technical Education 2 or 3 Prereq 9 hours in Educ. Local, state, and national vocational technical educational legislation, policies, programs, and organizations.
442 Program Planning in Agricultural Education 2 Prereq Ag Ed 342. Organization and management of a total vocational agricultural program.
471 Student Organizations in Agricultural Education 2 Prereq certified College of Education major. Role of Future Farmers of America (FFA) in student organizations; role of advisor; principles of leadership; characteristics of successful FFA chapters. Course equivalent to OSU's Ag 421/521.
497 Internship in Agricultural Education V 2-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Off-campus professional experience. S, F grading.
499 Special Problems V 1-4 May be repeated for credit. S, F grading.
504 Special Topics in Vocational Education V 1-3 Special topics in agricultural education or agriculture that will provide advanced training for teachers of agriculture.
508 Foundations of Vocational Education 2 Historical, philosophical, social, political and economic factors that influence education in vocational environments.
511 Seminar in Vocational Education V 1-2 Prereq graduate standing. Seminar addressing new and emerging legislation and educational programs in vocational education.
536 Microcomputers in the Vocational Classroom 3 (2-3) Implications and applications of microcomputers for experienced classroom teachers.
597 Cooperative Education Programs 3 Program principles and design; teacher coordination procedures and responsibilities; classroom and on-the-job instruction; public relations; teacher administrative responsibilities.
600 Special Projects or Independent Study Variable credit S, F grading.
General Agriculture Courses

Agri

501 Agriculture Master's Practicum 2 or 3 May be repeated for credit; cumulative maximum 6 hours. Prereq admission to graduate program, advisor approval. Course individually designed to provide practical participation/experience under professional supervision in areas related to student's specialization.

502 Graduate Seminar 3 Prereq admission to graduate program. Presentations and discussions of contemporary issues, trends, and recent research and development by graduate students, faculty, and visiting scholars.

560 Advanced Agricultural Topics V 1-3 May be repeated for credit; cumulative maximum 4 hours. Prereq admission to graduate program. Directed group study of selected advanced topics in agriculture and related areas.

562 Advanced Topics V 1-3 May be repeated for credit; cumulative maximum 4 hours. Prereq admission to graduate program. Directed group study of selected advanced topics in agriculture and related areas.

587 Issues in Agriculture 3 Prereq admission to graduate program. Exploration and assessment of current issues associated with domestic and international agriculture programs.

700 Master's Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

Agricultural Technology and Management Courses

AgTM

201 Metal Fabrication 3 (1-6) Theory, applications, and practices of welding, machining, and associated techniques in fabricating with metals.

305 Agricultural Precision Systems 3 (2-3) Prereq junior standing or permission of instructor. Systems for precision agriculture, equipment, software uses, principles, construction, care, tillage, planting, spraying, harvesting, and materials handling machinery. Field trips required. Cooperative course taught jointly by WSU and UI (ASM 305).

306 Agricultural Structures and Environmental Systems 3 (2-3) Planning farm buildings, construction materials, beam and column design, insulation and ventilation for environmental control. Cooperative course taught by UI (ASM 306), open to WSU students.

314 Agricultural Power Units and Mobile Electrical Systems 3 (2-3) Principles of thermodynamics, engine cycles, transmissions, electrical, starting, braking, steering, suspension systems, differentials and hydraulic systems.

315 Irrigation Systems and Water Management 3 (2-3) Prereq SoilS 201. Principles of irrigation and drainage, water measurement, irrigation methods and practices, selection of irrigation system components. Cooperative course taught jointly by WSU and UI (ASM 315).

330 Electrical Power Systems for Agriculture 3 (2-3) Prereq sophomore standing. Methods of selecting and installing electrical power circuits in agricultural operations; light frame construction; motor and control circuits; Programmable Logic Controllers (PLCs).

402 Methods, Materials, and Machines for Teaching Ag Mechanics 3 (1-6) Prereq AgTM 201; 9 hours in Educ. Development of shop programs in project planning, demonstrations, and skills performance; safety and management of materials, tools, and machines.

405 Advanced Agricultural Precision Systems 2 (1-3) Prereq AgTM 305 or instructor approval. Advanced principles of precision agricultural systems, software uses, management of controllers on equipment, geographical information systems and global positioning systems.

412 Human and Machinery Risk Management 3 Prereq junior standing or permission of instructor. History and current status of farm worker injury prevention programs in the US including worker's compensation insurance.

416 Fluid Power Systems 3 (2-3) Fluid power principles applied to the selection, design, operation, and management of agricultural and industrial machinery. Field trips required. Cooperative course taught by WSU, open to UI students (ASM 416).

436 Agricultural Technology Design 2 Prereq junior standing, AgTM 305, 405, or permission of instructor; c/AgTM 437. Design applications to methodologies as applied to precision agricultural systems; group problem solving activities, data analysis utilizing computers, and team design efforts. Credit not allowed for both AgTM 436 and 536.

437 Agricultural Technology Design Laboratory V 1 (0-3) to 2 (0-6) May be repeated for credit; cumulative maximum 4 hours. Prereq junior standing, AgTM 305, 405, or permission of instructor; c/AgTM 436. Lab for AgTM 436. Credit not allowed for both AgTM 437 and 536.

443 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours. Prereq permission of instructor. Laboratory and research techniques for AgTM.

444 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours. Prereq permission of instructor. Laboratory and research techniques for AgTM.

446 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours. Prereq permission of instructor. Laboratory and research techniques for AgTM.

447 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours. Prereq permission of instructor. Laboratory and research techniques for AgTM.

451 Seminar 1 May be repeated for credit; cumulative maximum 2 hours. Prereq junior standing. Readings and interviews, research, and oral presentation of professional subjects.

469 Aquacultural System Design 2 (1-3) Prereq Biol 107; Rec A S 468. Aquaculture production system design, species adaptation to aquaculture, management of water flows, oxygen and nutrient consumption, system impacts and economics.

481 Advanced Topics V 1-4 May be repeated for credit; cumulative maximum 8 hours. By interview only.

495 Internship in Agricultural Technology and Management 2 or 3 May be repeated for credit; cumulative maximum 6 hours. Prereq sophomore standing; prior approval of supervisor and advisor required. Work experience related to academic learning. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

505 Precision Agricultural Systems Management 3 Prereq admission to graduate program. Evolving technologies involved in precision agriculture and their application to agricultural systems.

536 Agricultural Technology Design 2 Graduate-level counterpart of AgTM 436; additional requirements. Credit not allowed for both AgTM 436 and 536.

537 Agricultural Technology Design Laboratory V 1 (0-3) to 2 (0-6) Prereq junior standing, AgTM 305, 405, or permission of instructor; c/AgTM 436. Graduate-level counterpart of AgTM 437; additional requirements.

Program in American Studies

libarts.wsu.edu/amerst

Wilson 104
509-335-1560


The American Studies Program offers the Bachelor of Arts, Master of Arts, and Doctor of Philosophy degrees in American Studies. American Studies is the interdisciplinary analysis of the United States in a global context. American Studies plays a unique role in the college of Liberal
Arts and in the University by bringing together faculty and students from a variety of disciplines to compare knowledge and gain perspectives on the United States.

The program offers a rich, rigorous approach combining the best intellectual insights from literature, historical studies, women’s studies, ethnic studies, the fine arts, environmental studies, and the social sciences.

Rather than restricting students to a single department’s offerings, the undergraduate major and minor, and the graduate program, allow students the freedom to build their understanding of U.S. culture by combining knowledge from courses in more than a dozen departments across the campus, in addition to our own courses.

The American Studies Program of Washington State University was founded in 1962, and is the recognized leader in this field in the Northwest. Our program is the only one in the Northwest recognized leader in this field in the Northwest.

The program offers a rich, rigorous approach combining the best intellectual insights from literature, historical studies, women’s studies, ethnic studies, the fine arts, environmental studies, and the social sciences.

American Studies Courses and Culture, Education, Fine Arts, History, Philosophy, from Comparative Ethnic Studies, Women’s Graduate Program

Undergraduate Students: among other areas. Thinking skills useful for careers in teaching, law, government service, and the non-profit sector, knowledge of the United States culture and critical experience of American culture. The major offers program of study International students may also American Studies advisor to create an individualized program of study for students who wish to bring their diverse other areas.

Undergraduate
The undergraduate major is ideal for students who feel their interests cannot be contained within a single discipline, and the minor is useful for students who wish to bring their diverse other classes into a more focused study of the United States. Each student works closely with their American Studies advisor to create an individualized program of study International students may also find the program useful as a way to organize their experience of American culture. The major offers knowledge of the United States culture and critical thinking skills useful for careers in teaching, law, government service, and the non-profit sector, among other areas.

Expected Learning Outcomes, Undergraduate Students:
• broad, critical knowledge of American cultural history
• capacity to write clear, analytical prose
• ability to read and assess documentary evidence from a variety of written genres
• capacity to compare and integrate knowledge from several disciplinary perspectives
• ability to think critically about the limits of disciplinary knowledge domains
• developed research skills, including handling of primary and secondary sources, library use and online scholarly search tools
• developed sense of engaged, critical citizenship

Graduate Program
The American studies MA and PhD degrees offer interdisciplinary approaches to the study of the United States as a multietnic, multicultural, and multicultural society, embedded in transnational forces. The program’s core graduate faculty come from Comparative Ethnic Studies, Women’s Studies and English. We also work with faculty in anthropology, communication, digital technology and culture, education, fine arts, history philosophy, political science, and sociology. In addition to the American studies courses, students take courses from these various departments, and draw them together in rigorous interdisciplinary synthesis. The program offers a broad array of intellectual possibilities, with strengths in critical race/ethnicity studies, gender and sexuality studies, multicultural American West, environmental cultural studies of race, class, gender, sexuality and empire, critical analysis of popular culture and sport, social movements and labor history, action research, and critical cyberculture studies.

Graduate Opportunities
While most American studies graduate students enter careers in university and college teaching, an advanced degree can also be useful preparation for government service, museum and archival work, community activism, and traditional or electronic publishing, among other careers.

Positions Held by Recent Graduates
University and college teaching positions; NGOs; community organizing. Related Programs: Comparative Ethnic Studies, Women’s Studies and English.

Expected Learning Outcomes, Graduate Students:
• broad, critical knowledge of American cultural history
• capacity to write clear, publishable analytic prose
• ability to read and assess documentary evidence from a variety of written genres
• capacity to compare and integrate knowledge from several disciplinary perspectives
• ability to think critically about the limits of disciplinary knowledge domains
• developed research skills, including handling of primary and secondary sources, library use and online scholarly search tools
• developed sense of engaged, critical citizenship
• professional competency in a discipline and in an interdisciplinary area of specialization
• high level of competency as a teacher of undergraduate students

For more information, contact Jean Wiegand, Washington State University, PO Box 644013, Pullman, WA 99164-4013, 509-335-1560, wiegandj@wsu.edu.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

American Studies Requirements (120 Hours)
The undergraduate major consists of a core curriculum of 30 hours (with some options available within the core) plus an additional 12-hour area of concentration which permits students to investigate particular aspects of American culture.

Core Requirements, in suggested order: Hist 110, 111, Am St/Engl/Hist/W St 216, W St/CES/Soc 300; Engl 380, 381, or 382; 300-400-level American history; 300-400-level CES or W St; Am St/Engl 470, 471, 472, 473, 474, or 475.

Areas of Concentration
A series of approved, linked courses in various departments have been established in the following interdisciplinary areas to satisfy the 12-hour requirement for an area of concentration:
1. Environment and Culture
2. Multicultural American West
3. Popular Culture, Film, and Mass Media
4. The Arts, Culture, and Social Change

The intention of the American studies faculty is to encourage students, with the approval of their advisors, to investigate areas not officially approved in the foregoing list. By designing their own programs and taking courses that will aid in their research, students can investigate the effects of agriculture, engineering, education, architecture, folklore, theatre, or mass communications, to name only a few, on American culture.

First Year

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<tr>
<th>First Term</th>
<th>Hours</th>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<td>GenEd 110 [A] (GER)</td>
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<td>GenEd 111 [A] (GER)</td>
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<td>Social Sciences [S,K] (GER)</td>
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<td>Science Elective (GER)</td>
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Second Year

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<td>Biological Sciences [B] (GER)</td>
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<tr>
<td>Foreign Language or Elective</td>
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<tr>
<td>Hist 110</td>
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<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Foreign Language of Elective</td>
<td>4</td>
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<tr>
<td>Hist 111</td>
<td>3</td>
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<td>Physical Sciences [P] (GER)</td>
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<td>Complete Writing Portfolio</td>
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Third Year

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<td>Am St 216</td>
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<td>Engl 380, 381, or 382</td>
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<td>W St 300</td>
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<td>Major Concentration Area Elective</td>
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Fourth Year

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<tr>
<td>300-400-level CES or W St Elective</td>
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<tr>
<td>Am St 470, 471, 472, 473, 477, or 475</td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>Elective</td>
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Minors

American Studies

A minor in American studies requires 21 hours which includes: Am St/Engl/Hist/W St 216, two courses from Am St/Engl 470, 471, or 472, two courses in an area of concentration, one course in 300-400-level American literature, and one course in 300-400-level American history. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

Description of Courses

American Studies Courses

Am St

216 [S,D] American Cultures 3 Introduction to the interdisciplinary study of American cultures and the field of American studies.

275 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

410 [T] Cities in Fiction 3 Prereq completion of one Tier I and three Tier II courses. Exploration of the city as an active agent in the fictional works of North American authors.

424 US Popular Culture 3 Critical approaches and issues in US popular culture.

470 [T] Literature and Culture of the American West 3 Prereq completion of one Tier I and three Tier II courses. Same as Engl 470.

471 [T] Cultural Politics Since World War II 3 American popular culture, politics and culture of the 1960s, or topics in recent cultural politics.

472 [T] Ecological Issues and American Nature Writing 3 Prereq completion of one Tier I and three Tier II courses. Representation of nature in American fiction and nonfiction; role of culture in shaping environmental problems and solutions.

473 [T,D] Arts in American Cultures 3 Prereq completion of one Tier I and three Tier II courses. Exploration of visual culture—from fine arts to advertising—as a political, sociological, psychological, and philosophical influence in 20th-century American cultures.

474 [T,D] Social Movements and US Culture 3 Prereq junior standing. Cultural impact of selected social movements such as abolition, populism, labor, women's, ethnic power, gay/lesbian and anti-globalization.

475 [T,D] Digital Diversity 3 Prereq junior standing; completion of one Tier I and three Tier II courses. Cultural impact of electronic media, especially the World-Wide Web; issues of race, class, gender, sexuality online.

480 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

496 Topics in American Studies 3 Same as Engl 496. Credit not granted for both Am St 496 and 596.

500 Colloquium 1 May be repeated for credit; cumulative maximum 12 hours. Current research in American studies. S, F grading.

501 Readings in American Studies 1 3 May be repeated for credit; cumulative maximum 6 hours. Readings in key texts in American culture, beginnings to 1865.

502 Readings in American Studies II 3 May be repeated for credit; cumulative maximum 6 hours. Readings in key texts in American culture, 1865 to present.

503 Contemporary Theories of Race and Ethnicity 3 Prereq graduate standing. Major theoretical readings and key recent texts in U.S. and transnational ethnic studies scholarship.

504 Contemporary Feminist Theories and Practices 3 Prereq graduate standing. Major theoretical readings and key recent texts in U.S. and transnational feminist scholarship.

513 Theory and Method in American Studies 3 Major theories and methods currently used by American studies scholars; key concepts in cultural analysis.

514 Interdisciplinary Research Methods 3 Major methods used in interdisciplinary cultural analysis including critical ethnography, oral history, rhetorical and textual analysis and other qualitative approaches.

520 Colonization, Globalization and Decolonization 3 Topics in the critical study of colonialism, neo-colonialism, imperialism, globalization and resistance to these forces.

521 Critical Studies in Sexuality 3 Topics in the critical analysis of normative sexualities and forces shaping US and global cultures.

522 Digital Cultures, Digital Divides 3 Critical analysis of the social and cultural dimensions of the "digital divide" and use of digital technologies by dominant and subordinate communities.

523 Environmental Justice Cultural Studies 3 Critical analysis of the cultural dimensions of environmental justice and injustice.

524 Culture Studies in Popular Culture 3 Interdisciplinary approaches to historical and contemporary trends and issues in US popular culture.

525 Social Movements in American Studies 3 Theoretical and historical study of the role of social movement in United States culture.

590 Seminar in American Studies 3 May be repeated for credit; cumulative maximum 9 hours. Interdisciplinary topics in American culture.

596 Topics in American Studies 3 Graduate-level counterpart of Am St 496; additional requirements. Credit not granted for both Am St 496 and 596.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

Department of Animal Sciences

www.ansci.wsu.edu
Clark 116
509-335-5523


The department offers courses of study leading to the degrees of Bachelor of Science in Animal Sciences, Master of Science in Animal Sciences, and Doctor of Philosophy (Animal Sciences). The department participates in the Joint Program for Animal Sciences and Veterinary Medicine, leading to the degrees of Bachelor of Science in Animal Sciences and Doctor of Veterinary Medicine. The department also participates in the graduate Program in Nutrition which offers a Doctor of Philosophy degree and in the Genetics and Cell Biology program which offers Master of Science and Doctor of Philosophy degrees.

Bachelor of Science Degree Program

Animal sciences students learn the biological and economic principles and practices associated with agricultural animal production, and companion and laboratory animal care. This training prepares graduates for a wide variety of career opportunities. These opportunities include animal production and food processing (meats, dairy products, etc.); animal research, biomedical research; zoos; companion animal services; the agricultural service industries (including feed manufacturing and sales, pharmaceuticals, artificial insemination, agricultural equipment, financial institutions, etc.); and government agencies. Continued education leading toward graduate or professional degrees is available for students from the animal sciences program. Employers seek out graduates in animal sciences because of their practical and technical knowledge of animal care and production.

We expect that students graduating with a B.S. in
Animal Sciences will have acquired: 1) a knowledge and understanding of the sciences associated with the biological systems of animals, 2) a knowledge of sound business, environmental and well-being management practices associated with animal production, 3) the ability to think critically and solve real-world problems, 4) the ability to communicate effectively using oral, written and electronic communication forms, and 5) leadership and teamwork skills with application to diverse care paths.

Students in animal sciences take a wide variety of agricultural and non-agricultural courses, receiving in-depth training in the biology of farm and companion animals. Core courses include animal nutrition, animal reproduction, and animal breeding. The curriculum is designed to provide students with the scientific, practical, and people skills to make them productive members of the food production, animal care and related industries. Prior to their junior year, students select an option to coincide with their interests. These options have required courses and electives which allow individual program specialization in areas such as dairy, beef or swine production, companion animal management, aquaculture, animal nutrition, growth, reproduction, genetics, biotechnology, meat science, sustainable agriculture, and animal behavior and well-being.

The Animal Management Option emphasizes the business, economics and practical management aspects of animal production and care of animals. This option is recommended for students preparing to work in agricultural animal production, companion animal care, or agribusiness.

The Pre-veterinary Medicine/Science Option places emphasis on basic science courses. This option is recommended for students planning to attend graduate school, apply to the professional program leading to the Doctor of Veterinary Medicine, or work in technical or specialized areas of animal science, such as extension, academia, research, technical consulting or laboratory work.

Many opportunities outside the classroom are available for students to further their educational experiences. Animal sciences students are encouraged to participate as part-time employees in the livestock production centers, or in research and teaching programs within the department. Many opportunities are available to students for on-the-job training in professional internships with different segments of the agricultural, companion animal or research sectors. Active student clubs within the Department of Animal Sciences, the College of Agricultural, Human, and Natural Resource Sciences, and the university community provide students with both professional and social contacts with faculty and other students. Departmental and college scholarships are available based on ability, financial need and interest area.

Animal sciences courses are attractive to students in many other majors and from any background. Animal sciences courses broaden a student’s knowledge of applied biology, agriculture and the environment, and society in general. Many students find a minor in animal sciences complements and adds depth to other majors.

Transfer Students

Students planning to transfer to the Department of Animal Sciences, Washington State University, from community colleges or other institutions should complete as many of the required courses in chemistry, biological sciences, physics, mathematics and general education as possible prior to transfer.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

INDUSTRY OPTION REQUIREMENTS

(121 HOURS)

At least 40 of the total hours required for the bachelor’s degree in this program must be in 300-400-level courses. One of the following degree programs must be chosen and completed.

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<td>A S 180</td>
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<td>or 202 [N]</td>
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<td>Bio 106 [B]</td>
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<td>or H D 205 [C]</td>
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<td>GenEd 110 [A]</td>
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<td>or 111 [A]</td>
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Second Year

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Third Year

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<tr>
<td>A S 314</td>
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<td>A S 330</td>
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<td>A S 350</td>
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Fourth Year

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<tr>
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<tr>
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<tr>
<td>A S 285, 488, CropS 302, 303, or NATRS 351</td>
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<td>A S 440</td>
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<td>Second Term</td>
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<td>A S 408 [M]</td>
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<td>A S 466, 468, 474 [M], or 476²</td>
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<td>A S 488 [M]</td>
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<tr>
<td>or NATRS 351³</td>
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<tr>
<td>Tier III Course [T] (GER)</td>
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<tr>
<td>Elective¹</td>
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Footnotes

¹ Some courses offered fall or spring term only.
² Take Stat 212 unless math proficiency GER has been taken.
³ Strongly recommended.


JOINT PROGRAM IN ANIMAL SCIENCES AND VETERINARY MEDICINE

In order to meet the increasing demand for food-animal veterinarians, the Department of Animal Sciences and the College of Veterinary Medicine have created a combined program designed to train selected, highly qualified students to earn both a Bachelor of Science in Animal Sciences and a Doctor of Veterinary Medicine degree within a seven-year program. Students will take a three-year animal science program, completing all General Education Requirements, the animal sciences core and pre-veterinary medicine requirements. This program includes mathematics; chemistry, including organic and biochemistry; general biology; physics; and the core of animal sciences courses, including an introduction to farm animals; then further education in animal feeds and nutrition, breeding and genetics, reproduction and the economics of animal production management. Students will then enter the College of Veterinary Medicine and complete the requirements for total hours and 300-400-level hours before earning the BS in Animal Sciences. Students will continue the curriculum, leading to the DVM degree after a total of seven years of college work.

Students will enter the university under normal procedures and must be advised in the Department of Animal Sciences. Qualified students will be invited to apply for the program. A high scholastic achievement and the promise of the same and demonstrated experience and interest in working with farm animals will be the primary criteria for initial invitation. Selected students will be identified and invited to apply for the AS-DVM program in the second semester of the first year. Students would then declare animal sciences as a major in the first semester of the sophomore year and enter the joint program in that year. The procedures for acceptance into the DVM program will be the same as those for other applicants. Successful participants will complete the three-year animal sciences program and begin the veterinary medicine curriculum in their fourth year of study. A 3.0 or higher grade point average for the first year and a 3.5 GPA upon completion of the third year will be required for the program. If the student is not accepted or
withdraws from the AS-DVM program, the student could earn the BS in Animal Sciences and/or apply to the College of Veterinary Medicine under normal procedures.

**Fourth-Seventh Years**

Those students finishing all required classes would complete only the DVM curriculum from this point on, with the exception of V MS/AS 414. Students who still need either A S 406 or 408 would enroll in one of those in lieu of V MS 414. If two 400-level animal production courses (A S 466, 472, 474, 476, or 478) were not completed, then students would enroll in one of them. Students will meet these requirements after one year of the DVM program. Successful completion of the College of Veterinary Medicine program will earn the Doctor of Veterinary Medicine.

### First Term Hours

**First Term**

**Hours**

- AS 101
- AS 172, 174, or 180
- Biol 106 or GER
- Chem 105 [P] (GER)
- Math 107, 171 [N], or GER

**Second Term**

**Hours**

- AS 176, or 178
- Arts & Humanities [H,G] (GER)
- Biol 106 or 107 [B] (GER)
- Chem 106 [P] (GER)
- Intercultural Studies [I,G,K] (GER)
- H D 205 [C] (GER)

### Second Term Hours

**First Term**

**Hours**

- Biol 107 [B] (GER)
- Chem 345
- GenEd 110 [A] or 111 [A] (GER)
- Phys 101 [P] (GER)

**Second Term**

**Hours**

- Arts & Humanities [H,G] or Social Sciences [S,K] (GER)
- EconS 101 [S] (GER)
- GenEd 110 [A] or 111 [A] (GER)
- Intercultural Studies [I,G,K] (GER)
- MBioS 301
- Complete Writing Portfolio

### Third Term Hours

**First Term**

**Hours**

- AS 260 or 272
- Arts & Humanities [H,G] (GER)
- GenEd 110 or 111 [A] (GER)
- Elective2

**Second Term**

**Hours**

- Intercultural Studies [I,G,K] (GER)
- Social Sciences [S,K] (GER)
- SoilS 201
- Stat 212 [N] (GER) or 412
- V MS 361

### Fourth Term Hours

**First Term**

**Hours**

- AS 300
- AS 360
- V An 308

**Second Term**

**Hours**

- Tier III Capstone (GER)
- AS 466, 468, 472, 474 [M], 478 [M] or 478
- Elective2

**Footnotes**

1. Some courses offered fall or spring term only.
2. Take Stat 212 unless math proficiency GER has been taken.

### PRE-VETERINARY MEDICINE/SCIENCE REQUIREMENTS (121 HOURS)

At least 40 of the total hours required for the bachelor's degree in this program must be in 300-400-level courses.

### First Year

**First Term**

**Hours**

- A S 101
- A S 180
- Chem 101 [P] (GER)
- Math 107, 140 [N], 171 [N], 201, or 202 [N] (GER)

**Second Term**

**Hours**

- Arts & Humanities [H,G] (GER)
- Biol 106 [B] (GER)
- Chem 106 [P] (GER)
- ComSt 102 [C], or H D 205 [C] or (GER)

### Second Year

**First Term**

**Hours**

- Biol 107 [B] (GER)
- Chem 345
- GenEd 110 [A] or 111 [A] (GER)
- Phys 101 [P] (GER)

**Second Term**

**Hours**

- Arts & Humanities [H,G] or Social Sciences [S,K] (GER)
- EconS 101 [S] (GER)
- GenEd 110 [A] or 111 [A] (GER)
- Intercultural Studies [I,G,K] (GER)
- MBioS 301
- Complete Writing Portfolio

### Third Year

**First Term**

**Hours**

- A S 260 or 272
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER)
- Engl 201 [W] or 402 [W] (GER)

**Second Term**

**Hours**

- Tier III Course [T] (GER)
- EconS 350

### Fourth Year

**First Term**

**Hours**

- AS 285, 488, CropS 302, 303, or NATRS 351
- A S 454
- EconS 335

**Second Term**

**Hours**

- Tier III Course [T] (GER)

**Footnotes**

1. Some courses offered fall or spring term only.
Minors

Animal Sciences

A minor requires a minimum of 16 semester hours of animal science courses, 9 of which must be in 300-400 level work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Students wishing to declare a minor should consult the department as early as possible to develop an approved schedule of courses.

Description of Courses

Animal Sciences Courses

A S

101 Introductory Animal Science 3 (2-3) Types and breeds of livestock, terminology, methods, management systems, techniques of animal and poultry production and consumer impact. Cooperative course taught jointly by WSU and UI (AVS 109).

172 Dairy Cattle Management Laboratory 1 (0-3) Management practices associated with a dairy enterprise. Cooperative course taught by UI (AVS 172), open to WSU students. S, F grading.

174 Beef Cow Calf Management Laboratory 1 (0-3) Management practices associated with a beef cow calf enterprise for students without experience. Cooperative course taught jointly by WSU and UI (AVS 174). S, F grading.

178 Swine Management Laboratory 1 (0-3) Management practices associated with a swine enterprise. Field trip and special clothing required. Cooperative course taught by WSU, open to UI students (AVS 178). S, F grading.

180 Animal Sciences Orientation 1 Animal sciences as a profession; career opportunities, curriculum, advisement, internships, externships, animal centers, special services centers, and course requirements.

198 Honors, Introductory Animal Science 3 An introductory course for animal science, agriculture and home economics, and science honors students. Open only to students in the Honors College.

205 [B] Companion Animal Nutrition 3 Information on nutrient use by the animal body and factors governing companion animal nutrient requirement including basic and practical aspects.

243 Companion Animal Diseases 3 A survey of common diseases that affect dogs, cats, pocket pets and horses including terminology, signs, processes and prevention.

260 Live Animal and Carcass Evaluation 3 (1-6) Basic principles of live animal and carcass evaluation. Cooperative course taught jointly by WSU and UI (AVS 263).

274 Feedlot Management 2 (1-3) Concepts used in the cattle feeding industry. Cooperative course taught by UI (AVS 204), open to WSU students.

275 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

285 Rights and Welfare of Animals 3 Prereq Biol 102 or 106, or c//. Ethical considerations and welfare of animals used as companions, for food, and in scientific research. Cooperative course taught by WSU, open to UI students (AVS 485).

313 Feeds and Feeding 3 (3-3) Prereq Biol 106. Utilization, practices, requirements, nutritive characteristics, and calculations of rations for animals. Field trip required. Cooperative course taught jointly by WSU and UI (AVS 306).

314 Principles of Nutrition 3 Prereq Biol 107; Chem 102 or 106. Digestion, absorption, metabolism, and function of nutrients. Cooperative course taught jointly by WSU and UI (AVS 305).

330 Animal Genetics 3 (2-3) Prereq Stat 212. Basic genetic concepts and methods for the genetic improvement of Mendelian and polygenic traits in animals. Cooperative course taught by WSU, open to UI students (AVS 330).

345 Introduction to Animal Growth and Development 3 Prereq A S 101; Biol 106. Animal structure, composition, whole body and cellular growth, prenatal and postnatal growth; emphasis on skeletal muscle, bone and adipose tissue. Cooperative course taught by WSU, open to UI students (AVS 315).

346 Introduction to Skeletal Muscle Physiology 3 Structure, function and regulation of skeletal muscle; embryonic, neonatal, postnatal growth/atrophy; muscle-specific proteins. Cooperative course taught by WSU, open to UI students (AVS 316).

350 Physiology of Reproduction 3 Prereq Biol 106; Biol 107; Chem 102 or 106. Anatomy and physiology of reproductive organs; hormones of reproduction; production of gametes; artificial insemination; fertilization; prenatal development; fertility and infertility. Cooperative course taught jointly by WSU and UI (AVS 452).

351 Physiology of Reproduction Laboratory 1 (0-3) Prereq A S 350 or c//. Laboratory and field techniques used in animal reproduction involving hormones, artificial insemination, semen evaluation and pregnancy.


367 Medical and Surgical Problems in the Horse 3 Same as V MS 367.

378 Advanced Livestock and Meat Selection and Evaluation 2 (0-6) May be repeated for credit. Prereq A S 260. Principles and practices of livestock and meat selection and evaluation. Off-campus and weekend participation required.

380 Careers in Animal Science 1 Issues and preparation for careers in animal sciences areas.

398 Cooperative Education Externship V 2-8 May be repeated for credit; cumulative maximum in A S 398 and 399: 12 hours. Cooperative education externship in livestock production or related field. S, F grading.

399 Practicum V 1-8 May be repeated for credit; cumulative maximum in A S 398 and 399: 12 hours. Directed internship in livestock production and related fields conducted at WSU centers or off campus. S, F grading.

408 [M] Ruminant Nutrition 3 Prereq A S 313. Anatomy, physiology, and metabolism in ruminant animals. Credit not granted for both A S 408 and 508.

410 Canine and Feline Nutritional Biology 3 Prereq A S 313; A S 314. Nutritional biology of the domestic canine and feline; topics include nutrition, reproduction, health and behavior.

428 Topics in Animal Breeding 2 May be repeated for credit; cumulative maximum 4 hours. Prereq A S 330. Systems of selection and mating for genetic improvement in farm animals. Credit not granted for both A S 428 and 528.

440 [M] Physiology of Domestic Animals 3 Biol 106; Biol 107. Basic animal functions; relationship and difference between domestic animals; measurement of functional processes.

451 Endocrine Physiology 3 Prereq Biol 106; Biol 107; MBioS 303. Structure and physiology of glands of internal secretion and their hormonal effects on processes of growth, development, metabolism, and production of vertebrates; minor emphasis on invertebrates. Credit not granted for both A S 451 and 551. Cooperative course taught jointly by WSU and UI (AVS 451).

452 Physiology of Lactation 3 Prereq A S 350. Anatomy, physiology, and endocrine control of mammary gland development and milk secretionary processes. Cooperative course taught jointly by WSU and UI (AVS 451).

454 Artificial Insemination and Pregnancy Detection 2 (1-3) Prereq A S 351. Techniques in semen handling, insemination and pregnancy detection in cattle. Special clothing required. Cooperative course taught jointly by WSU and UI (AVS 218).

464 [M] Companion Animal Management 3 (2-3) Prereq FSHN course; Biol course; Stat course. Care and management of companion animal species throughout the life cycle, including nutrition, reproduction, exercise and behavior. Cooperative course taught by WSU, open to UI students (AVS 464).

466 [M] Horse Production 3 (2-3) Prereq A S 313; A S 330; A S 350. Principles of breeding, feeding, and management of horses. Field trip required. Cooperative course taught by WSU, open to UI students (AVS 466).

468 Concepts in Aquaculture 3 (2-3) Prereq NATRS 421, or permission of instructor. Same as NATRS 424.
507 Advanced Nutrient Metabolism 3 Prereq A S 313; A S 330; A S 350. Principles of metabolism, feeding, and management of dairy cattle. Field trip required. Cooperative course taught jointly by WSU and UI (AVS 472).

505 Digestion and Nutrient Utilization in Animals 2 (1-2) Prereq FSHN course. Gastrointestinal physiology, rate of passage, feed intake regulation, measures of digestibility, starch, fat and nonstarch polysaccharide, and digestion and utilization of nutrients. Cooperative course taught by WSU, open to UI students (AVS 510).

513 Mineral and Vitamin Metabolism 4 Prereq FSHN course; MBioS 303. Absorption, excretion, metabolism, dietary requirements and interactions of minerals and vitamins in animals and humans. Cooperative course taught by WSU, open to UI students (AVS 513).

520 Preparation of Scientific Literature in Animal Sciences 2 Preparation of grant proposals, manuscripts, and literature reviews on research topics.

528 Topics in Animal Breeding 2 Prereq A S 330. Graduate-level counterpart of A S 428; additional requirements. Credit not granted for both A S 428 and 528.

540 Seminar in Animal Physiology 1 May be repeated for credit. Current developments in animal physiology. Cooperative course taught by WSU and UI (AVS 520).

550 Advanced Reproduction 4 (3-3) Prereq A S 350. Physiology of sexual maturation; gametogenesis; sexual cycle; fertilization; embryonic development; physiological, chemical and immunological characterization of hormones of reproduction. Cooperative course taught by WSU, open to UI students (AVS 550).

551 Endocrine Physiology 3 Graduate-level counterpart of A S 451; additional requirements. Credit not granted for both A S 451 and 551. Cooperative course taught jointly by WSU and UI (AVS 551).

558 Molecular and Cellular Reproduction 3 (2-2) Same as MBioS 528.

573 Advanced Dairy Management 3 (1-6) Prereq A S 472. Graduate-level counterpart of A S 473; additional requirements.

582 Seminar in Reproductive Biology 1 Prereq graduate standing. Current developments in reproductive biology. Cooperative course taught jointly by WSU and UI (Biol 551); S, F grading.

588 Perspectives in Biotechnology 3 Prereq MBioS 301. Graduate-level counterpart of A S 488; additional requirements.

598 Advanced Topics in Animal Sciences 1 or 2 May be repeated for credit. Recent research in various disciplines of animal sciences. Cooperative course taught by WSU, open to UI students (AVS 598).

600 Special Projects or Independent Study Variable credit, S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit, S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit, S, F grading.
1. Familiarity with the basic principles and findings of ethnology, archaeology, physical anthropology, and linguistics, the four subfields of American anthropology as well as the ways in which these four subfields are interrelated;
2. Awareness of the basic research and analytical methods and underlying theories of the four subfields of anthropology;
3. Ability to read critically and synthesize information produced by professional anthropologists and published in academic books and journals;
4. Ability to write in accessible, standard, academic prose narratives that are marked by: a framework of clear, general statements; specific, concrete evidence that supports these statements; analysis and discussion of the material presented; and a coherent summary conclusion, indicating the significance of the work;
5. Ability to apply the principles, findings, and research and analytical methods of anthropology to new situations and data, including those of everyday life.

Schedules of Studies
Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

ANTHROPOLOGY REQUIREMENTS
(121 HOURS)
A minimum of 34 hours in anthropology courses are required. Grades of C- or higher are considered passing grades for all anthropology classes; D- and lower are failing grades. No required course can be taken pass, fail.

The anthropology major must complete a core: Anth 203, 230, 260, 490, and one course from each of the following: a) Anth 300, 301, 303, 304, 306, 307, 309, 316, 320, 327, 401, 402, 403, 404, 405, 418, 419, or 428; b) Anth 350, 355, or 450; c) Anth 307, 309, 316, 320, 327, 401, 402, 403, 404, 405, or 430; d) Anth 463, 465, 466, or 468; d) Anth 300, 330, 331, 334, 336, 370, 430, or 436. Physical Sciences [P] (GER) 4 Social Sciences [S,K] (GER) 3

**Second Term**

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<td>Art &amp; Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER) 6</td>
<td>Biological Anth Elective 3</td>
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**Third Year**

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<td>Archaeology Anth Elective 3</td>
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**Fourth Year**

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<td>Anth 340 [M], 390 [M], 401 [M], 403 [M], 405 [M], or 430 [M] 3</td>
<td>Linguistic Anth Elective 3</td>
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Second Term

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<td>Anth 490 [M] 3</td>
<td>Tier III Course [I] (GER) 3</td>
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Footnotes

1 Two years of one foreign language from high school or one year at college required.
2 Math 212 preferred.
4 Concentrating electives beginning in the junior year in one sub area of anthropology or in a minor discipline in consultation with the advisor is recommended.
5 Select courses from the four subdisciplines.

Minors

**Anthropology**

A student with 60 semester hours may certify a minor. A minor requires a minimum of 18 semester hours in anthropology, including three of the following: Anth 101 or 198, 203, 230, and 260. At least 9 hours must be 300-400-level work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. A minimum grade of C- is required in each course contributing to the minor.

**Description of Courses**

**Anthropology Courses**

**Anth**

101 [K] General Anthropology 3 Major subfields of anthropology; physical (human evolution and race), cultural-social, archaeology, and linguistics.

130 [I] Great Discoveries in Archaeology 3 Impact of great archaeological discoveries and the work of archaeologists on our sense of the past.

198 [K] Anthropology Honors 3 Open only to students in the Honors College.

201 [G] Art and Society 3 Art as an expression of social and cultural systems in non-Western societies.

203 [K] Peoples of the World 3 Principles of cultural anthropology through study of various ethnic groups from different parts of the world.

214 [S,D] Gender and Culture in America 3 Exploration or variation in gender roles, relationships, values, and institutions among men and women in US, ethnic, and other subcultures.

230 Introduction to Archaeology 3 Development of a dynamic picture of past human behavior from archaeological evidence.

256 Introduction to Syntax and Semantics 3 Same as Engl 256.

260 [B] Introduction to Physical Anthropology 4 (3-3) Evidence for human evolution; processes of racial differentiation; techniques of physical anthropology.

275 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

300 Field Methods V 2-8 Prereq permission by application. Practice in methods of archaeological, ethnological, or linguistic field research.

301 [G] Arts and Media in Global Perspective 3 Contemporary arts and media around the world, and their impact on identity, society, and culture.

302 [K] Childhood and Culture 3 Anthropological theory and methods applied to the study of infant, child, and adolescent development.

303 Gods, Spirits, Witchcraft and Possession 3 Non-Western religions; religion as a cultural system.

306 [K] Cultures and Peoples of the Middle East 3 Contemporary Arab cultures in a historical perspective within the framework of Western-Middle Eastern relations.

307 [K] Contemporary Cultures and Peoples of Africa 3 Introduction to family, social, political, economic and religious institutions of African cultures in context of African social issues.
Department of Apparel, Merchandising, Design, and Textiles

amdt.wsu.edu
Kruegel 51
509-335-7949

Chair, K. Leonas; Professor, L. Arthur; Associate Professors, J. Anderson, C. Salusso; Assistant Professors, H. Kim, Y. Kwon; Instructors, P. Fischer, J. Infanger.

Apparel, Merchandising, Design and Textiles offers Bachelor and Master of Arts degrees, and also participates in the Interdisciplinary Doctoral Program.

The Department of Apparel, Merchandising, Design, and Textiles has no peers in the state when considering the range and depth of programs at the undergraduate and graduate levels. The Washington textile and apparel industry is global, massive, multifaceted and in close competition with California for level of productivity and profit. Washington is ranked as one of the top five apparel and manufacturing centers in the U.S. Apparel, merchandising, design, and textiles graduates are thoroughly prepared for exciting and challenging careers in the textile and apparel industry through coursework designed to develop both professional and personal expertise.

The curriculum options are designed to:
• Explore textile and apparel industry issues and practices encompassing historic and futuristic global technological and economic trends, challenges, and opportunities.
• Develop an understanding of the societal, psychological, and cultural factors that influence consumer response to apparel and textile products.

• Provide opportunities for students to practice methods and skills required for developing and evaluating apparel and textile products, merchandising those products, analyzing consumer uses and mediating consumer responses to apparel and textile products.
• Develop analytical, evaluative, communication, teamwork and leadership skills necessary to succeed in today’s work environment.

Areas of Study

All apparel, merchandising, design, and textile majors complete core courses that introduce fundamental concepts and methods. Students then develop an area of expertise by selecting an option in apparel design or merchandising, and are encouraged to take courses or obtain a minor in related areas of interests.

Internships

Students in the merchandising option must complete an internship while apparel design and textiles design option students are also highly encouraged to complete an internship in the apparel, merchandising, and textiles industry. Opportunities exist within the apparel, merchandising and textile complex throughout Washington, across the U.S. and through our active study abroad program. Internships provide a competitive edge and yield higher-level positions upon graduation as well as significantly better entry salaries.

Preparation for Graduate Study

Normally the applicant for graduate study should have an undergraduate major in apparel, merchandising, design, and textiles. However, candidates with a good record in related fields may be well prepared for certain areas of advanced study. Students from related disciplines are required to take some courses required of undergraduate majors in these fields. Please refer to WSU Graduate catalog and web site at gradschool.wsu.edu.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

APPAIRE DESIGN REQUIREMENTS

(120 HOURS)

Apparel design focuses on the interaction between design and merchandising and offers depth in apparel design. Students typically complete a minor in Fine Art and/or Business Administration.

Students wishing to certify in apparel merchandising, design, and textiles must have a minimum 2.70 cumulative GPA. Students must receive a C or better grade in all AMT courses and Mktg 360. A course may only be repeated once. Courses required in these programs cannot be taken on a pass, fail basis. To maintain certification, a 2.70 cumulative GPA is required each semester. Independent study and internship courses (490, 495, 498) will not be included in GPA calculations. Students dropping below a 2.70 GPA will be de-certified and can reapply when the GPA is 2.70 or above. Students interested in the apparel design option are accepted through a portfolio review process. Applications are available in the main office and need to be submitted during the spring semester of the second year. Transfer student who have completed two years of college may submit an application during the summer prior to the first semester of attendance at WSU for consideration.

First Year

First Term Hours
AMT 108 3
Engl 101 [W] (GER) 3
FA 101 [H] (GER) recommended 3
GenEd 110 [A] (GER) 3
Soc 101 [S,D] or Psych 105 [S] (GER) recommended 3

Second Term Hours
AMT 208 3
ComSt 102 [C] or H D 205 [C] (GER) recommended 3
FA 110 or 111 3
FShN 130 [B] (GER) recommended 3
GenEd 111 [A] (GER) 3

Second Year

First Term Hours
AMT 210 4
AMT 211 3
AMT 220 3
Stat 212 [N] (GER) recommended 4

Second Term Hours
AMT 315 3
AMT 368 3
Physical Sciences [P] (GER) 3 or 4
EconS 101 [S] or 102 [S] (GER) 3
Elective 3
Complete Writing Portfolio

Third Year

First Term Hours
AMT 311 3
AMT 314 3
AMT 410 3
AMT Elective 3
Intercultural Studies [J,G,K] (GER) 3

Second Term Hours
Biological Sciences [B] (GER) 3 or 4
AMT 312 3
AMT 420 [M] 3
Mktg 360 3
Electives 3

Fourth Year

First Term Hours
AMT 318 3
AMT 411 3
AMT 490 or AMT Electives 6
AMT 492 3
Tier III Course [T] (GER) 3

Second Term Hours
AMT 412 3
AMT 413 [M] 3
AMT 417 [M] 3
AMT 496 1
Electives 3
MERCHANDISING REQUIREMENTS
(120 HOURS)

Merchandising includes courses designed to allow students to develop competence in the planning, buying, and selling of merchandise in either manufacturing or retail organizations. Curriculum includes a focus on marketing. Students often pursue one of the minors in Business. Students wishing to certify in apparel merchandising, design, and textiles must have a minimum 2.70 cumulative GPA. Students must receive a C or better grade in all AMT courses and Mktg 360. A course may only be repeated once. Courses required in these programs cannot be taken on a pass, fail basis.

First Year

<table>
<thead>
<tr>
<th>Term</th>
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</tr>
<tr>
<td>AMT 108</td>
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<tr>
<td>ComSt 102 [C]</td>
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<tr>
<td>Engl 101 [W]</td>
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<td>FA 101 [H]</td>
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<tr>
<td>GenEd 110 [A]</td>
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<td>AMT 208</td>
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<td>FSHN 130 [B]</td>
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<td>GenEd 111 [A] (GER)</td>
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<td>Soc 101 [D] or Psych 105 [S] (GER) recommended</td>
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<td>Stat 212 [N] (GER) recommended</td>
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Second Year

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<td>AMT 211</td>
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<td>AMT 315</td>
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<td>Complete Writing Portfolio</td>
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Third Year

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<td>AMT 314</td>
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<td>AMT 417 [M]</td>
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<td>Mktg 360</td>
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<td>AMT 420 [M]</td>
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<td>AMT 490</td>
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<td>EconS 352</td>
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Fourth Year

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<td>AMT 318</td>
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<td>Tier III Capstone Course (GER)</td>
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<tr>
<td>AMT 413 [M]</td>
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<tr>
<td>AMT 450</td>
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<td>AMT 440</td>
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<td>Electives</td>
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</table>

Footnotes
¹ A maximum of 9 hours of electives may be taken a the 100-200 level.
² A maximum of 9 hours of electives may be taken a the 100-200 level.

Description of Courses

**Apparel, Merchandising, and Textiles Courses**

**AMT**

**108 Introduction to Apparel, Merchandising, Design and Textiles** 3 An introduction to apparel, textiles, merchandising and design with an emphasis on an examination of industry structures and careers.

**208 Visual Merchandising and Promotion** 3 (2-2) Examination of fashion promotion components of visual display and store layout; application of principles and elements of design and concept development.

**210 Textile Specifications** 4 (3-2) Examination of criteria for textile selection, with emphasis on acceptance and rejection of apparel/textile product; industry specification practices and fitting techniques.

**211 Apparel and Textile Product Development** 3 (0-6) Problem solving approach to apparel and textile product assembly with emphasis on product development process.

**220 Historic Costumes and Textiles** 3 Historical survey of western dress from prehistory to mid-1800s.

**311 Draping and Flat Pattern** 3 (0-6) Prereq AMT 211 and certification in Apparel Design. Introductory draping, drafting, and flat pattern techniques for apparel patternmaking.

**312 Fitting the Human Form** 3 (0-6) Prereq AMT 311. Advanced level exploration of draping and flat pattern techniques; industry specification practices and fitting techniques are emphasized.

**314 Fashion Forecasting** 3 (2-2) Prereq AMT 208, 210; and certification in Apparel Design. Developing forecasting expertise needed to work in merchandising environment; examined through influences on acceptance and rejection of apparel/textile products.


**318 Merchandise Buying and Planning** 3 (2-2) Prereq EconS GER; Math GER; AMT 314; and certification in Apparel Design or Merchandising. In-depth study of apparel buying and planning, application of buying and planning principles, problem solving skill development.

**320 Textiles Design I** 3 Prereq AMT 108, 215. Textile design with emphasis upon weaving, dying, surface design, or graphics.

**321 Textile Design II** 3 (0-6) Prereq AMT 320 or by permission. Development of conceptual and technical abilities in the textile arts with an emphasis on individual expression and designing for industry.

**322 Textile Design III** 3 (0-6) May be repeated for credit; cumulative maximum 6 hours. Prereq AMT 320 or permission. Computer-aided design techniques for professional textile design portfolio development.

**368 Illustration and Rendering Techniques** 3 (0-6) Prereq AMT 208; 220. Illustration and rendering used for costume and fashion design.

**370 Theatrical Costuming** 3 (0-6) Prereq AMT 211 or permission. Creation of costumes for theatre following design throughout production process; parallels between costume shop and apparel industry couture shop.

**408 [T] Visual Analysis and Aesthetics** 3 Prereq AMT 368, Com 321, FA 304 or Mktg 360; completion of one Tier I and three Tier II courses. In-depth analysis of the visual interaction among apparel, accessories and the body; identifying effective visual communication.

**410 Advanced Assembly Techniques** 3 (0-6) Prereq AMT 215, 311, 316. Advanced assembly techniques for a range of textiles and multi-layer garments; emphasis of high-quality execution on final products.

**411 Fashion Line Pre-development** 1 (0-2) Prereq AMT 311. Exploration of design inspiration and development of theme and strategy for a fashion line presented in an annual fashion show event.

**412 Fashion Line Development** 3 (0-6) Prereq AMT 410, 411, and certification in Apparel Design or Merchandising. Development of original fashion lines for an annual fashion event.

**413 [M] International Trade in Textiles and Apparel** 3 Prereq Mktg 360 and certification in Apparel Design or Merchandising. Economic/social conditions influencing apparel trade and consumption; comparison of production, distribution, and consumption of apparel in the global economy.

**417 [TD] Multicultural Perspectives on the Body and Dress** 3 Prereq 6 hours social science; completion of one Tier I and three Tier II courses. Engagement in multidisciplinary approaches that explore the social importance of the body, gender and dress.

**419 Regional Experience in Apparel/Textiles Field** V 1 or 3 Prereq certified majors or permission of instructor. Field trips to experience the textile and apparel industry from the perspective of professionals within a wide range of careers.

429 National Experience in Apparel/Textiles Field V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq junior standing. Field trip to experience national culture integrated with the field of textiles and apparel in industry centers in the US.

439 International Experience in Apparel/Textiles Field V 1-3 May be repeated for credit; cumulative maximum 6 hours. Field trip to experience international culture integrated with the field of textiles and apparel in industry centers worldwide.

440 Advanced Retail Management 3 Prereq AMT 318; Econ 352. Advanced application of management principles and theory in the retail world.

450 Strategy Planning and Decision Making 3 Prereq AMT 318. Examination and synthesis of advanced merchandising theory; strategic planning, decision-making and the role of technology in the textile and apparel industry.


480 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

490 Cooperative Education Internship V 1-10 May be repeated for credit; cumulative maximum 10 hours. Prereq certification in Apparel Design or Merchandising. Experience with business, industry or government unit.

492 Computer Applications in Apparel, Textile, and Design 3 (1-4) Prereq AMT 312; AMT 368. Computer-aided design techniques in fashion graphics; portfolio development and presentation.

495 Instructional Practicum V 1-4 Prereq by interview only. May be repeated for credit; cumulative maximum 4 hours.

496 Special Event Production V 1-3 Prereq AMT 208 or 211, department major and permission of instructor. Producing, exhibiting, and promoting product lines/special events or apparel, textiles and illustrations exhibits. May be repeated for credit; cumulative maximum 6 hours.

498 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours. Current issues, trends, and merchandising strategies in apparel and textiles.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

508 Theoretical Frameworks Underlying Scholarship 3 Exploration of current topics through readings in apparel, merchandising, and textiles.

512 Apparel Design Graduate Studio 3 Prereq AMT 508. Integration of consumer demand target market research with the development, application, and testing of prototype products for specific end uses.

517 Theory and Methods of Culture, Gender and Dress 3 Prereq graduate standing. Exploration of appearance issues, theory, and research from the perspective of social science, feminist theory, postmodern and poststructural discourses.

518 Apparel Merchandising Analysis 3 Analysis of marketing and retailing strategies, trends and technological developments in relation to business and consumer aspects within a global context.

519 Research Methods 3 Prereq graduate standing; AMT 508; graduate course in statistics or permission of instructor. Analysis and understanding of research methods, exploration of thesis topic as applicable to the fields of apparel, merchandising, design and textiles.

520 Aesthetic Analysis of Fashion Design 3 Prereq graduate standing. In-depth analysis of apparel fashion design provided through exploration of aesthetic and human perception theories within a socio-historic context.

596 Advanced Instructional Practicum 3 Prereq Univ 590 or cr/lf. Information and direction for graduate student teaching assistants seeking professional development in classroom teaching. S, F grading.

598 Topics in Apparel and Textiles V 1-3 May be repeated for credit; cumulative maximum 8 hours. Current topics in apparel and textile theory and research.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master’s Special Problems, Directed Study and/or Examination Variable credit S, F grading.

School of Architecture and Construction Management

www.arch.wsu.edu
Carpenter Hall
509-335-5539


The School

The School of Architecture and Construction Management offers courses of study leading to two baccalaureate degrees, the Bachelor of Science in Construction Management and Bachelor of Science in Architectural Studies.

Students graduating in Architecture and Construction Management are able to: 1) understand the role of architecture and construction management within current cultural and global conditions, 2) understand the role of architecture and construction management in the enhancement and preservation of natural resources, 3) understand the role of history and its transformations over time, 4) develop a desire and passion for life-long learning, and 5) develop intellectual and analytical skills that will be the foundation for future leaders.

The School of Architecture and Construction Management is a member of the Association of Collegiate Schools of Architecture (ACSA) and the Associated Schools of Construction (ASC). Students chapters of the American Institute of Architects (AIA) and the Associated General Contractors (AGC) provide linkages with their professional counterparts.

Architecture

The School offers as its professional degree in Architecture the Master of Architecture. This degree is the professional degree accredited by the National Architectural Accrediting Board (NAAB) which allows students to take state exams and become licensed architects. Students must successfully complete a four-year undergraduate degree in architecture or a previous five-year Bachelor of Architecture degree to be eligible for entry to the Master of Architecture program. Please consult the WSU Graduate Catalog for specific information regarding this degree as well as admission requirements and course descriptions.

The School of Architecture and Construction Management also offers a post-professional course of study leading to a Master of Science in Architecture. This degree is available at the Spokane campus. It should be noted that this degree is not a professional accredited degree.

Most states require that an individual intending to become licensed as an architect hold an accredited degree. There are two types of degrees that are accredited by NAAB: (1) the Bachelor of Architecture, which requires a minimum of five years of study, and (2) the Master of Architecture. As stated above WSU offers the Master of Architecture as the professional accredited degree.

The four-year, pre-professional degree at WSU is not accredited by NAAB. This degree provides a thorough foundation in the field of architecture, as preparation for either continued education in a professional degree program or for employment in the architecture profession with a licensed architect and employment options in fields related to architecture.

The architecture curriculum is planned so that foreign study and other off-campus programs can be incorporated in the fourth year of study or during the summer. Options include a semester overseas during the spring semester as well as a year of study at the WSU Spokane campus. Foreign studies options include WSU sponsored programs, and programs offered by other institutions. Coordination is through the WSU Education Abroad Office.

Each year, one section of fourth-year students, and one-third of the Master of Architecture program students study at the Spokane campus. The Spokane campus offers the opportunity to pursue interdisciplinary work, as well as service learning projects in an urban environment. Students in Spokane study with students majoring in interior...
design and landscape architecture. Foreign studies options are available to both Pullman and Spokane students. On entering the certified program in the second year, students make their selection of studying in Pullman or Spokane in the fourth year.

**Construction Management**

The management of construction projects has become more complex due to the shortage of resources, specialized materials, sophisticated delivery methods and the financial and legal responsibilities encountered during the project life cycle. From construction management to project management and program management, the needs of the industry and the built environment are expanding at an unprecedented rate. At the heart of the building process is the construction professional.

The Construction Management Program provides students with the tools and skills necessary to develop strong administrative, leadership and management expertise to be successful in today's construction industry. Students pursuing a degree in Construction Management will be expected to understand a wide variety of topics that make up the built environment. This expertise includes understanding properties of materials and construction systems required for the construction professional. Concepts regarding contract administration, sustainability, risk management, estimating and scheduling are critical skills. Students in this program are encouraged to develop an inquisitive and inventive mind in order to understand the management techniques, methods and sequencing. It is also important that the graduate in construction management be knowledgeable in the field of business. Courses offered in a variety of departments are required to assure this breadth of understanding. The Bachelor of Science in Construction Management degree program is accredited by the American Council for Construction Education (ACCE).

Once certified in the major, students must maintain an overall minimum GPA of 2.5 or will be dismissed from the program.

**Transfer Students**

Students planning to transfer into the Construction Management discipline at Washington State University are subject to the same requirements as all other non-certified students. Transfer students must fulfill all first year course requirements and apply for certification before admittance into the program.

**Schedules of Studies**

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

**ARCHITECTURE (PRE-PROFESSIONAL PROGRAM)**

General Requirements - BS in Architectural Studies

1. Due to limitations of space and faculty, enrollment in second-year courses and certification as a major in architecture can be granted to only the most qualified students. Prospective applicants for these programs are responsible for familiarizing themselves with the school’s requirements and procedures.

2. Students who wish to transfer from another institution may find it possible to transfer GER course work from these institutions. While this may reduce the amount of time required at WSU to complete GER requirements, it is very difficult to transfer appropriate architecture course work to compress the four-year time period. Please consult the WSU Transfer Guide and contact the School of Architecture and Construction Management for information regarding transfer requirements.

3. Transfer students and former WSU students must submit an application for admission to the university, a supplemental application, and current academic records to the School by the dates listed in this catalog.

4. Students wishing to transfer from another institution into the second, third, or fourth year of architecture must submit a portfolio in order for the School to evaluate their potential for success in the program. Contact the School for portfolio requirements.

5. A student may not enroll in 300- or 400-level Arch courses without being certified in architecture.

6. A student may not take courses required by the School on a pass, fail basis.

7. Third-year, fourth-year and graduate students will be required to participate in one short off-campus study tour each year.

8. Beginning Fall 2006, all students admitted into the second year will be required to purchase laptop computers. Please contact the school for details and specifications.

Students who enter WSU and have an interest in architecture should contact the academic coordinator for the school for specific advising.

**First Year**

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<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arch 101</td>
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<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>Engl 101 [W] (GER)</td>
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<td>GenEd 110 [A] or 111 [A] (GER)</td>
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<td>Math 107, if necessary, or Electives</td>
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<tr>
<th>Second Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arch 103</td>
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<tr>
<td>Arch 202</td>
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<tr>
<td>F A GER Elective [H,G]</td>
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<td>3</td>
</tr>
<tr>
<td>Math 171 [N] or 206 [N] (GER)</td>
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</table>

**Footnotes**

1 3 hours of Fine Arts Electives are required. Fine Arts GERs will fulfill this requirement.

2 Students who are not adequately prepared for Math 171 or 206 should take Math 107 as needed during the fall semester of their first year. All freshmen must take the math placement exam.

**BACHELOR OF SCIENCE IN ARCHITECTURAL STUDIES (2ND THROUGH 4TH YEARS) (125 HOURS)**

The Bachelor of Science in Architectural Studies is a program primarily for those who want a foundation in the study of architecture. This degree was designed for students who want to pursue a career in architecture or to work in an architecturally related discipline such as planning, technology, project and community development or within government agencies. On successful completion of the B.S. Architectural Studies program, an individual can work as an unlicensed architect in a professional architecture practice. In order to be eligible to license as an architect, a professional Master of Architecture program must also be completed. This degree may also be used as a preparation for professional, accredited graduate education. Students who pursue this option at WSU must complete all university requirements in addition to school requirements listed below.

**Pre-Architecture**

Students who enter WSU and have an interest in architecture will be assigned an advisor in the School of Architecture and Construction Management. Students interested in architecture should enroll in Arch 101 fall of their freshman year, as this is the first prerequisite in an eight-semester sequence.

**Certified Program**

The School of Architecture and Construction Management accepts 50-55 students into the second year. WSU students who wish to enroll in second year must submit an application to the School of Architecture and Construction Management during the freshman spring semester. To be considered, a student must have completed at least 26 semester credit hours of architectural program requirements, including the following courses, or their equivalents from other institutions: Arch 101, 103, 202, Engl 101, GenEd 110 or 111; Math 171 or 206 or Phys 101 or 201; 7-8 credits of GER. A grade of C or better must be achieved in Arch 101 and 103. Selection is based on the student’s GPA in the 26+ semester credit hours of required course work. If students do not complete Arch 101, 103 and 202 at WSU, they will be required to submit visual evidence of their architectural graphic and design work for review by the Admissions Committee. Most of the students will be selected at the end of the WSU spring semester but some positions will be held open until summer for transfer students.

**Transfer Students**

Students who wish to transfer into the second year must demonstrate equivalent course work from another institution. Transfer students must make application to Washington State University, the School of Architecture and Construction Management, and submit a portfolio of design work (see schedule below). Transfer students will be evaluated based upon grades from coursework that is equivalent to first year requirements at WSU. Portfolios will be judged relative to content that is equated to Architecture 101 and 103.

Application/Portfolio/Notification Deadlines:

| May 1 | All second-year applications due. |
| May 1 | Portfolios due from applicants who did not complete Arch 101, 103, 202 at WSU. |
| June 1 | Screening complete: Applicants will be classified as accepted or denied. Applicants will be notified by mail in June. |
WSU Spokane

The School sends 15 fourth-year and 1/3 of the graduate students to the WSU Spokane urban campus. Students are given the option of selecting either Pullman or Spokane for their fourth year of studies when they apply for certification. In the event that there are not enough requests to fill positions at either location, a selection process will be implemented to fill remaining positions. Second year acceptance letters will notify students as to whether they will spend their fourth year in Pullman or Spokane. Students accepting admission to the second year also accept the conditions of their place of study during the fourth year. Selection of graduate students to either Pullman or Spokane will be made at the time of acceptance to the Graduate School.

NOTE: Students offered positions in the second-year courses must promptly notify the School of their acceptance of the position or the next alternate will be offered the position.

Students that are admitted must be registered for the fall semester and attend the first day of classes or lose their position.

Second Term Hours

Arch 203 3
Arch 209 3
Arch 324 [M] 3
Communication Proficiency [C,W] (GER) 3
Physical Sciences [P] (GER) 3 or 4
Social Sciences [S,K] (GER) 3
Complete Writing Portfolio

Third Year

First Term Hours

Arch 301 5
Arch 303 3
Arch 351 3
Arch 353 1
Arch 432 3
Second Term Hours

Arch 303 5
Arch 352 3
Arch 354 1
Arch 433 3
Biological Sciences [B] (GER) 3 or 4

Fourth Year

First Term Hours

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Arch 401 5
Arch 409 [M] 3
Arch 451 3
Arch 472 3
Second Term Hours

Arch 403 5
Arch Emphasis Electives1 6
Tier III Course [T] (GER) 3

Footnotes

1 At least 3 hours of Physical Science Electives from the school's approved list are required for graduation.
2 At least 8 hours of Architectural Emphasis Electives from the school's approved list are required for graduation.

CONSTRUCTION MANAGEMENT
(PRE-PROFESSIONAL PROGRAM)

Construction management is a four-year program structured into one year of preconstruction management and three years of construction education.

The degree of Bachelor of Science in Construction Management is for those students who wish to work in the profession of construction management or in a management capacity in other facets of the construction industry.

Upon completion of the preconstruction management program requirements, or their equivalent for transfer students, application must be made for certification into the Construction Management program at the end of the first year. Beginning Fall 2006, all students admitted into the second year will be required to purchase laptop computers. Please contact the school for details and specifications.

Certification Requirements:

The School of Architecture and Construction Management has separate admissions and certification policies and procedures for its different degree programs. Admission to the Construction Management program will be considered for those who have qualified for admission to WSU and fulfill the requirements outlined below.

The undergraduate Construction Management program has a one-step screening process leading to certification. The screening process takes place between the first and second year. Qualified students will be certified at this time and allowed to take upper-level coursework as well as construction management courses. This limitation is imposed because of limited space, equipment and faculty resources. Students may transfer to the school during the two-year process or apply directly for second-year certification.

Application Requirements and Deadlines:

All second-year applications due by May 1. Grade records for transfer students for the semester or quarter must be available to the construction management coordinator before June.

The construction management coordinator reviews all applications and makes recommendation to the School of Architecture's Admissions and Academic Affairs committee regarding applicants. Selection will be made on or about June 15; all applicants will be notified of their status by letter mailed from the school.

Course and GPA Requirements for Screening:

Because the school receives more applications from qualified students than can be accommodated, screening for entry into the second year is based on the applicant fulfilling the minimum requirements listed and the applicant's overall GPA. To be considered for admission, an applicant must:

1. Qualify for admission into Washington State University.
2. Complete the first year as listed herein under preconstruction management.
3. Earn a grade of C or better in Com St 102 or H D 205, Cst M 102, GenEd 110, 111, EconS 101, 102, Engl 101, Geol 101, Math 171, and another course that meets a General Education Requirement other than those previously listed. For applicant screening, the highest grade will be used.
4. Complete and submit an application to the Construction Management program by May 1.
5. Maintain an overall minimum GPA of 2.5.

First Year

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<tr>
<th>Term</th>
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<td>First Term</td>
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<td>Arch 351</td>
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<td>B Law 210</td>
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<td>Cst M 201</td>
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<td>Cst M 254</td>
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<td>Phys 101 [P] (GER)</td>
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<td>Second Term</td>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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<tr>
<td>First Term</td>
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<td>Arch 301</td>
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<td>First Term</td>
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<td>Cst M 460</td>
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<td>Cst M 462</td>
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<td>MgtOp 301</td>
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CONSTRUCTION MANAGEMENT
REQUIREMENTS (2ND THROUGH 4TH YEARS) (123 HOURS)

Second Year

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<td>First Term</td>
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<tr>
<td>Arch 301</td>
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<td>Arch 303</td>
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<td>Arch 351</td>
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<td>Arch 433</td>
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<tr>
<td>Biological Sciences [B] (GER)</td>
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Third Year

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<td>Arch 433</td>
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Footnotes

1 At least 3 hours of Physical Science Electives from the school's approved list are required for graduation.
2 At least 8 hours of Architectural Emphasis Electives from the school's approved list are required for graduation.

NOTE: Students offered positions in the second-year courses must promptly notify the School of their acceptance of the position or the next alternate will be offered the position.

Students that are admitted must be registered for the fall semester and attend the first day of classes or lose their position.
Architectural Design I 3 Prereq certified Arch major; c/ in Arch 203. Design theory relating to building technology, systems and crafts which influence design decisions.

220 [HI] Architectural History I 3 Prereq certified Architecture majors with c/ in Arch 201, graduate standing, or students pursuing non-Architecture degrees. Historic development of world architecture from prehistory to late medieval; social, technical and scientific influences.

301 Architectural Design III 5 (0-10) Prereq certified Arch major; Arch 203. Introduction of architectural design focusing on environmental and social issues.

303 Architectural Design IV 5 (0-10) Prereq certified Arch major; Arch 301; c/ in Arch 309. Continuation of study of architectural design/form as influenced by cultural, spiritual and symbolic issues.

309 Design Theory II 3 Prereq certified Arch major; Arch 220; Arch 324; Arch 203 and c/ in Arch 301. Design theory relating to cultural/symbolic issues which influence design decisions.

324 [M] Renaissance to Baroque Architecture 2 Prereq certified Arch major; Arch 220. Western architecture from the Renaissance to Baroque to pioneers of modern architecture.

330 Materials and Construction I 3 Prereq certified Arch or Cst M major. Wood, steel, concrete, and masonry systems materials; introduction of materials related to building systems; frame bearing wall and roof systems, skin systems.

332 Materials and Construction II 3 Prereq certified major in Arch or Cst M. Theory and application of various construction systems and material applications explored through drawing.

341 Computers in Architecture 2 (1-3) Prereq certified major in Arch or Cst M. Introduction to computers, terminology, and software applications, applicable to the field of architecture.

351 Architectural Structures I 3 Prereq certified major in Arch or Cst M. Introduction to statics and mechanics; analysis and design of statically determinate architectural structures using timber, steel, and reinforced concrete systems.

352 Architectural Structures II 3 Prereq certified major in Arch or Cst M; Arch 351. Continuation of Arch 351.

353 Structures Studio I 1 (0-2) Prereq certified major in Arch or Cst M; Arch 351 or c/. Design principles of architectural structures systems; available systems for spanning and enclosing architectural space.

354 Structures Studio II 1 (0-2) Prereq certified major in Arch or Cst M; Arch 352 or c/. Continuation of Arch 353.

401 Architectural Design V 5 (0-10) Prereq certified Arch major; Arch 303; c/ in Arch 409 (Pullman campus). Advanced architectural design focusing on technology, systems and crafts of buildings.

403 Architectural Design VI 5 (0-10) Prereq certified Arch major; Arch 401; c/ in Arch 409 (Spokane campus). Advanced study of architectural design/form as influenced by social and environmental issues applied to large-scale developments.

409 [M] Design Theory VI 3 Prereq certified Arch major; Arch 209; Arch 401 or c/ in Arch 401 or 403. Advanced design theory relating to social and environmental issues which influence housing design for the urban environment.

411 Architectural Design VII 6 (0-12) Prereq Arch 403. Comprehensive building design incorporating programming, space planning, interiors, site planning and landscaping.

413 Architectural Design Thesis 6 (0-12) Prereq Arch 411. In-depth study of architectural design problems; thesis relating to architectural project selected by student and approved by faculty.

425 [M] Architectural Theory I 2 Prereq certified Arch major; Arch 209. Architectural criticism and theory as viewed from contemporary and historical precedents.

426 Architectural Theory II 2 Prereq certified Arch major. Continuation and expansion of Arch 425 including applications to design concepts and methodologies.

427 Site and Landscape Design 3 (1-4) Prereq certified Arch major; Arch 203. Exploration of issues and development of skills relative to site and landscape design.

428 [T] Architecture and Culture in the Islamic World 3 Prereq completion of one Tier I and three Tier II courses. A thematic course exploring the relationship between architecture and culture in the context of Islamic civilization.

432 Environmental Control of Buildings I 3 Prereq certified Arch or Cst M major. Mechanical systems for buildings; building heating, ventilating, and air conditioning systems, heat flow concepts.

433 Environmental Control of Buildings II 3 Prereq certified Arch or Cst M major; Arch 432. Water supply, drainage, electrical and lighting systems for buildings.

436 Contemporary Furniture Design 3 (1-4) Prereq certified Arch or Cst M major. Investigation of issues related to the design and fabrication of furniture; students design and fabricate projects in the school shop.

438 Energy, Design and Computers 2 (1-2) or 3 (1-4) Prereq certified Arch or Cst M major. Design theory and methods of energy and resource conservation in architecture through the use of daylight modeling and computers.
440 **Architectural Acoustics for Construction Management** 2 Prereq Phys 101 or higher; Math 107 or higher. Introduction to the art and science of architectural acoustics with emphasis on understanding construction performance specifications.

442 **[M] Theory of Urban Design and Development** 3 Prereq certified major in Arch, Cst M, business, or public administration. History, principles and theories of the physical design and development of cities.

446 **Computer Animation I** 3 (1-4) Introduction to computer animation production and building simulation; applicable for all majors.

451 **Computer-aided Design I** 3 (2-2) Prereq certified Arch or Cst M major; basic CAD course. Computer-aided design related to 3D modeling and construction documents.

452 **Computer-aided Design II** 2 (1-2) Prereq certified Arch or Cst M major; Arch 451. Continuation of Arch 451.

456 **Field Sketching/Journal Keeping** 3 (2-2) Prereq certified Arch or Cst M major. Field-sketching/journal-keeping strategies to facilitate investigation and comprehension of the built environment.

463 **Architectural Structures III** 3 Prereq certified Arch or Cst M major; Arch 351; Arch 352. Wind and seismic loads on architectural structures; high-rise systems; reinforced concrete and masonry structures. Credit not granted for both Arch 463 and 563.

464 **Architectural Structures IV** 3 Prereq certified Arch or Cst M major; Arch 352. Deflection theory; classical and computer analysis for statically indeterminate architectural structure systems. Credit not granted for both Arch 464 and 564.

472 **Codes and Acoustics** 2 Prereq certified Arch or Cst M major. Building codes and specifications; sound theory, control, and acoustic systems applied to buildings.

480 **Architecture Internship** V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq certified Arch or Cst M major. Placement in an approved industrial, professional, or governmental situation for specialized or general experience.

490 **Seminar in Architectural Design** V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq certified Arch major. Advanced study in architectural design. Cooperative course taught by WSU, open to UI students (Arch 490).

491 **Seminar in Architectural Communications** V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq certified Arch major. Advanced study in graphic communication.

492 **Seminar in Architectural History** V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq certified Arch major. Advanced study in architectural history.

493 **Seminar in Environmental Control** V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq certified Arch or Cst M major. Advanced study in environmental control of buildings.

494 **Seminar in Urban and Regional Planning** V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq certified Arch major. Advanced study in urban and regional planning.

495 **Seminar in Construction Management** V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq certified Arch major. Advanced study in construction practice management.

496 **Seminar in Computer Applications** V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq certified Arch major; senior standing. Advanced study in architectural practice management.

497 **Seminar in Professional Practice** V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq certified Arch major; Arch 301; Arch 351 or c/. Advanced study in architectural structures systems.

499 **Special Problems** V 1-4 May be repeated for credit. S, F grading.

511 **Design VIII/Graduate Design Project** 6 (0-12) Prereq Arch 403. Studio course divided between urban design and preliminary design on graduate project.

513 **Graduate Design Project** 6 (0-12) Prereq Arch 511, 515. Final graduate design studio focusing on individualized topics.

515 **Research Methods and Programming** 3 Prereq graduate standing; Arch 403. Exploration of traditional research methods and investigations for architects.

520 **Directed Topics in Architecture** V 1-3 May be repeated for credit; cumulative maximum 6 hours. Topics related to areas of emphasis in the program and student specialization.

525 **History and Theory** 3 Prereq graduate standing; Arch 409. History and theory of 20th century architecture focusing on cultural and philosophical principles related to design.

527 **Site and Landscape Design** 3 Prereq graduate standing; Arch 403. Exploration of issues of site context analysis, topography, planning, and landscape design.

530 **Philosophies and Theories of the Built Environment** 3 Prereq graduate standing in Arch/I D/L A. Focus on systematic thought which may describe behavior of the built environment.

531 **Advanced Tectonics** 3 Prereq graduate standing; Arch 530; Arch 403. Tectonic theory of concrete and metal construction with focus on skin design and technology as formative elements in architecture.

534 **Theory Case Studies** 3 Prereq Arch/I D/L A 530 and/or graduate standing. In-depth exposure to the literature of selected theory typologies covered in Arch 530; Necessity Empirical Observation, History, Comparison, etc.


540 **Research Methods** 3 Prereq graduate standing. Research methods, from technical to philosophical, directed toward qualitative research.

542 **Issues in Architecture** 3 Prereq graduate standing; Arch 409, 525. Examination of issues in architecture related to society, culture, environment, politics, and philosophy.

546 **Computer Animation II** 3 May be repeated for credit; cumulative maximum 9 hours. Prereq Arch 446. Advanced computer animation techniques; advanced specialization in building/design simulation, art animation, science/engineering animation.

550 **Design Applications** 2 Prereq Arch/I D/L A 530. Emphasizes the cognitive and behavioral practices of design; exploration in terms of content and value.

551 **Design/Build Firm Management** 3 Prereq graduate standing. Introduction to design/build firm management procedures.

552 **Design/Build Project Management** 3 Prereq graduate standing, Arch 551. Introduction to policies, contracts and joint venture organizational structures related to management of design build projects.

553 **Design and Construction Law** 3 Prereq graduate standing. Introduction to contract law affecting the design and construction industry.

554 **Design/Build Case Studies** 3 Prereq graduate standing. Case studies of specific design/build projects from legal, economics, technology, or firm management perspectives.

560 **Interdisciplinary Seminar** 3 Prereq graduate standing. Explores approaches to design thinking in the topic areas of people and place, history, theory and criticism, and physical design.

561 **Interdisciplinary Seminar II** 3 Prereq Arch/I D/L A 560. Builds upon knowledge gained from Arch/I D/L A 560; expected to conduct an in-depth investigation of a specific aspect of dwelling.

563 **Architectural Structures III** 3 Prereq Arch 515 or c/. Graduate-level counterpart of Arch 463; additional requirements. Credit not granted for both Arch 463 and 563.
Construction Management Courses

Cst M

102 Introduction to Construction and Architecture 2 Introduction to the construction industry; reviewing contract documents, methods of project management and current issues pertaining to the industry.

201 Materials I 3 Prereq certified Cst M major. Introduction to construction materials; primary materials used in below-grade substructures and above-grade superstructures using Construction Specification Institute (CSI) format.

202 Materials II 3 Prereq Cst M 201; certified Cst M major. Introduction to primary materials in construction of building envelopes, interiors, interior surfaces and finishes using Construction Specification Institute (CSI) format.

232 Construction Systems 3 (2-2) Prereq certified Cst M major; Arch 101 or M E 103; Arch 330. Theory and application of various construction systems and material applications.

252 Construction Administration and Documentation 4 (3-2) Prereq certified Cst M major; Cst M 102. Study and understanding of administrative procedures found within construction projects and respective documentation.

253 Building Codes and Zoning 3 Prereq certified Cst M major. Fundamental understanding of how to research, interpret, and apply zoning regulations and building code requirements.


262 Legal Aspects of Construction and Design 3 Prereq B Law 210; Cst M 253; certified Cst M major. Law governing construction and design; liability, delay and disruption theory; breach of contracts; fundamentals of clauses; interpretation and conflict resolution.

282 Methods Procedures II 4 Prereq certified Cst M major. Examination of components in a commercial building form; soils as a design material to finishes.

288 Methods and Procedures of Heavy Construction 3 Prereq junior standing; certified construction management major. Methods and procedures for site work, heavy equipment, cranes, productivity; finance and safety requirements.

460 Construction Cost Accounting 3 (2-3) Prereq certified Cst M major; Cst M 451. Examination of cost accounting utilized for specific project control as well as overall company control.

462 Planning and Scheduling 3 (2-3) Prereq Cst M 371; certified Cst M major. Planning construction projects including terminology, scheduling development and techniques, activity identification, calculations and resource planning; introduction to software.

466 Heavy/Civil Estimating 3 Prereq certified major in construction management or junior certified in civil engineering. Estimating in quantity survey, price extension and bidding in civil projects.

467 Ethics and Construction Management 3 Prereq Cst M 252, 370; senior standing; certified construction management major. Ethics and morality relating to the construction profession including common decisions.

473 Human Productivity in Construction 3 Prereq MgtOp 301; certified Cst M major. Leadership and management concepts and methods applied to human behavior to enhance motivation, productivity and safety in construction.

475 [M] Legal Aspects of Construction and Design 3 Prereq Cst M 252; certified Cst M major. Statutory and common law governing the practice of design and construction in the US; emphasis in architecture and construction project contract administration.

495 Seminar in Construction Management V 1-4 Prereq certified Cst M major. Advanced study in construction practice management. May be repeated for credit; cumulative maximum 4 hours.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.
The WSU Asia Program promotes teaching, research, and outreach to prepare present and future leaders for the opportunities and challenges of Asia's increasing presence in global and regional affairs.

The WSU Asia Program offers a Bachelor of Arts in Asian Studies, a minor in Asian Studies, Certificate in East Asian Studies for College of Business Majors, and a Certificate for College of Engineering and Architecture Majors. The curriculum, leading to a B.A. in Asian Studies, promotes depth and breadth. The program provides students the opportunity to focus on one country or region (China, Japan, India, Middle East), while at the same time, requiring students to develop pan-Asian perspectives through geographic disciplinary distribution requirements.

The Asia Program is designed to provide a broad, systematic knowledge of Asia through interdisciplinary study and is intended to serve four major objectives:

1. To prepare students intending to teach courses on Asia in public schools,
2. To provide academic background for those planning to pursue graduate work on Asia,
3. To prepare students for business careers dealing with Asia, and
4. To train those interested in governmental and various private career opportunities related to Asia.

Upon completion of the Asia Program curriculum, graduates will be able to: 1) identify, locate, and critically evaluate resources for the study of Asia; 2) understand the commonalities, complexity, and diversity of Asia; 3) understand disciplinary approaches to the study of Asia; 4) identify problems and questions related to Asia and place in appropriate context; 5) understand traditions and transformations of Asian cultures; and 6) have competency in an Asian language equivalent to 2nd year level.

### Schedules of Studies

**Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs).** Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

#### ASIAN STUDIES REQUIREMENTS

**(120 HOURS)**

A minimum of 40 hours of courses on Asia, including 16 hours of an appropriate language and 18 hours at the 300 level or above, are required. 18 of the 40 credits of the Asia major must be earned at WSU.

**First Year**

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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>Asia 270 or 314</td>
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**Footnotes**

1. 16 hours of college level study of a single Asian language (e.g., Chin/Japn 101, 102, 203, 204). Languages not taught at WSU may be studied through distance learning programs, intensive summer courses, etc. For the second year of languages not taught at WSU, students may substitute up to 6/6 hours of any Asian study abroad credit. Although native speakers of an Asian language may be exempt from the language requirement and take 16 additional credit hours of Asia courses, they are encouraged to complete a minimum of one year college level study of a different Asian language.

Geographic Distribution: 9 hours (3 hours minimum from each of the following groups): East Asia (Asia 131, 275, or 315); South Asia (Asia 270 or 314); and Middle East (Asia 272, 273, or 306).

Disciplinary Distribution: 12 hours (6 hours minimum from each of the following groups): Asian humanities courses (H or G GER); and Asian social science courses (S or K GER).

Additional requirements: A minimum of 18 hours of 300-400-level Asia courses; and 6 hours of Writing in the Major (M GER). Note: Courses may be used to satisfy requirements in more than one of the above categories. Students should consult their advisor to determine when courses are offered. Relevant 300-400-level courses not cross-listed with Asia may be counted toward a major or minor if approved by the Director of the Asia Program.

Study Abroad is very strongly encouraged. Contact your advisor and the Education Abroad Office for more information.

### Minors

**Asian Studies**

A minor in Asian Studies requires 23 hours, including one year of a single Asian language or 8 hours of Asian study abroad credit. Of the 23 required credits, at least half must be upper division, and at least 9 credit hours must be earned at WSU. Native speakers of an Asian language are exempt from the language requirement for the minor (they instead take 8 additional credit hours of Asia courses).

**Certificates**

**Certificate in East Asian Studies for Business Majors**

The Certificate in East Asian Studies for College of Business Majors requires a total of 17 credit hours and is open to any declared College of Business undergraduate major in good standing.

The requirements are: Chin 101 and 102 or Japn 101 and 102 or other East Asia Language available through study abroad; one from Asia 121, 275, 315, 373, 374, 475, 476, or 477; Asia 479; and one from IBus 380, HBM/IBus 433, MgtOp/IBus 453, Econ/S Bus 470, Fin/IBus 481 or Mktg/IBus 482.

Students who complete two semesters of foreign language beyond the one-year requirement may waive three credits required from Asia 121, 275, 315, 374, 475, or 477. Study abroad is encouraged and appropriate credit toward completion of certificate will be accepted at the discretion of the Asia Program Director. No more than 4 hours earned at other institutions that may apply toward the certificate and no more than 4 hours may be pass/fail. Native speakers of an East Asian language may waive the foreign language requirement, but must take eight additional hours from the list of “cultural survey” courses.
Certificate in East Asian Studies for Engineering and Architecture Majors

The Certificate in East Asian Studies for College of Engineering and Architecture Majors requires a total of 17 credit hours and is open to any declared College of Engineering and Architecture undergraduate major in good standing.

The requirements are: Chin 101 and 102 or Japn 101 and 102 or other East Asia Language available through study abroad; two from Asia 121, 275, 315, 373, 374, 475, 476, or 477; and Asia 479.

Students who complete two semesters of foreign language beyond the one-year requirement may waive three credits required from Asia 121, 275, 315, 373, 374, 475, or 477. Study abroad is encouraged and appropriate credit toward completion of certificate will be accepted at the discretion of the Asia Program Director. No more than 4 hours earned at other institutions that may apply toward the certificate and no more than 4 hours may be pass/fail. Native speakers of an East Asian language may waive the foreign language requirement, but must take eight additional hours of courses from the list of “cultural survey” courses (see department for an approved list). A minimum cumulative GPA of 2.0 is required for successful completion of the certificate.

Description of Courses

Asia Courses

Asia

111 [G] Asian Film 3 Same as Chin 111.
121 [G] Modern Chinese Culture 3 Same as Chin 121.
201 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.
270 [K] India: History and Culture 3 Same as Hist 270.
271 [K] Southeast Asian History: Vietnam to Indonesia 3 Same as Hist 271.
272 [I] Introduction to Middle Eastern History 3 Same as Hist 272.
275 [K] Introduction to East Asian Culture 3 Same as Hist 275.
280 [G] Philosophy and Religion of Islam 3 Same as Phil 280.
301 [K] East Meets West 1 May be repeated for credit; cumulative maximum 6 hours. Interdisciplinary course on the encounter between Asia and the West taught as a multicultural symposium. S, F grading.
306 [K] Cultures and Peoples of the Middle East 3 Same as Anth 306.
311 [M] Great Asian Directors 3 (2-3) Prereq China 111, 121 or 131. Same as Chin 311.
314 [G,M] Philosophies and Religions of India 3 Same as Phil 314.
315 [G,M] Philosophies and Religions of China and Japan 3 Prereq 3 hours Phil. Same as Phil 315.
330 [M] The Art of War 3 (2-2) Prereq Chin 111, 121 or 131. Same as Chin 330.
370 [G] History of Ancient and Medieval India 3 Same as Hist 370.
373 [G] Chinese Civilization 3 Same as Hist 373.
387 World War II in Asia and the Pacific 3 Same as Hist 387.
401 Special Topics - Study Abroad V 1-12 May be repeated for credit. S, F grading.
470 [M] Gandhi: India and the United States 3 Prereq completion of one Tier I and three Tier II courses, Same as Hist 470.
472 [M] The Middle East Since World War I 3 Same as Hist 472.
473 [T] The Middle East and the West 3 Same as Hist 473.
474 Modern South Asia: Community and Conflict 3 Same as Hist 474.
475 Mao to Deng: The People’s Republic of China, 1949 - 1999 3 Same as Hist 475.
476 [M] Revolutionary China, 1800 to Present 3 Same as Hist 476.
479 [T] History of East Asian Economic Development Since 1945 3 Same as Hist 479.
499 Special Problems V 1-4 May be repeated for credit. S, F grading.

School of Biological Sciences

sbs.wsu.edu
Abelson 312
509-335-3553

Professor and Director, G. Thogaard; Professor and Director of Sciences (Vancouver), S. Bollens; Professor and Associate Director of Graduate Program, R. A. Black; Professor and Associate Director of Undergraduate Program, C. Omoto; Regents Professor, G. Edwards; Professors, D. Evans, R. Gomulkiewicz, L. Hufford, K. Kardong, R. Mack, D. Moffett, C. Robbins, H. Schwabl, M. Webster; Associate Professors, J. Bishop, P. Carter, M. Dyuhlka, M. Knoblauch, R. Lee, J. Mallatt, A. McCubbin, S. Moffett, J. Pazzonakas, C. Portfors, A. Storfer, M. Tegeder, E. Raobison, P. Verrell; Assistant Professors, M. Alfaro, J. Busch, A. Coussins, H. Hellmann, B. Kemp, C. Schultz, E. Schwartz; Clinical Associate Professor, B. Banker; Clinical Assistant Professors, D. Conley, C. Davitt, G. Rollwagen-Bollens; Research and Adjunct Faculty, D. Holmes, J. Lynch-Alfaro, D. Monk, K. Ostrand; Instructors, B. Marshall, A. Brown; Professors Emeriti, H. Hosick, R. Johnson, L. Kirschner, M. Ku, J. Larsen, D. Miller, P. Schroeder, U. Uribe.

The School of Biological Sciences offers training in cellular, organismal, population and environmental biology, with an emphasis on plants and animals. The School offers Bachelor of Science programs in biology and zoology, Master of Science programs in biology, botany, and zoology, and Ph.D. programs in botany and zoology. The School also offers undergraduate minors in zoology and biology.

Facilities

There are modern facilities for study of cell and developmental biology, genetics, plant and animal physiology, anatomy and ultrastructure, functional morphology, ecology, molecular systematics, and behavioral, environmental, and evolutionary biology. The university’s rural location is conducive to field studies on the 800 acre George E. Hudson Biological Preserve at Smoot Hill. Special facilities include the collections of the Charles R. Conner Museum, the Marion Ownbey Herbarium, the Franceschi Microscopy and Imaging Center, plant growth facilities, and a laboratory for Bioanalysis and Biotechnology with facilities for both DNA genotyping and stable isotope analyses.

Cooperation with many other campus units extends research opportunities. Cooperative arrangements with faculty in units such as molecular biosciences, animal sciences, natural resource sciences, and the College of Veterinary Medicine are readily achieved.

Undergraduate Programs

Introductory biological sciences courses provide background in the concepts common to life sciences and an overview of the diversity of animals, plants, and microorganisms. Advanced biological sciences courses probe specific areas in depth.

Undergraduate preparation in either biology or zoology provides a student with a basis for pursuing career opportunities in ecology, laboratory research and technology, human health, animal health and welfare, and a variety of other biological specializations.

Candidates for the Bachelor of Science in Biology or Zoology must fulfill the university and the College of Sciences requirements for graduation as described elsewhere in this catalog. Honors students complete honors requirements in place of general education requirements. The math and science components of those requirements are fulfilled as part of the departmental requirements below. Other university requirements include 120 total credit hours of which 40 must be 300-400-level credits, the writing portfolio, and two writing in the major courses (identified by [M] in the course listings). College requirements include one year of foreign language if two years were not taken in high school. The Schedule of Studies below provides a sample curriculum for each of the degree options offered by the School of Biological Sciences. A 2.00 overall minimum GPA is required in all coursework for all college and departmental requirements. A maximum of 4 credits of coursework that are graded S, F (i.e., 490, 491, 495, 496, 499) may be
used toward fulfilling departmental requirements or program options, and no courses taken P, F can be applied toward fulfilling departmental requirements or program options. Students may not double major in both biology and zoology.

**Biology**

Six options are available for the Bachelor of Science degree in Biology: biology education, botany, general biology, ecology/evolutionary biology, entomology, and pre-physical therapy / pre-occupational therapy / pre-physician’s assistant. The biology education option is particularly suitable for students who would like to teach biology at the high school level. The botany option is available for students with a special interest in plants and is particularly suitable for those who would like to pursue graduate studies. The general biology option provides very appropriate, broad training in the life sciences, particularly for students seeking to continue in professional or graduate school. The ecology/evolutionary biology program provides the graduate with a broad-based ecological understanding applicable to such fields as environmental and wildlife biology. The entomology option is available for students who wish to focus on insect biology. The pre-physical therapy / pre-occupational therapy / pre-physician’s assistant option is designed for students who would like to pursue studies in physical therapy, occupational therapy, or physician assistant programs.

We expect that students graduating with a B.S. in biology will have acquired: (1) an understanding of the biology of plants, animals and microorganisms at all levels of biological organization, from genes to ecosystems; (2) a capacity for and interest in continued learning; (3) the ability to apply critically their knowledge and practical skills to real-life problems, and (4) the ability to communicate effectively with diverse audiences, both orally and in writing.

**Zoology**

Three options are available for the Bachelor of Science degree in Zoology: general zoology, pre-veterinary/animal care, and pre-medicine / pre-dentistry. Each of these options includes a core curriculum consisting of an array of courses plus additional courses taken in the particular program option. The flexible curriculum leading to a zoology degree meets the needs of students with various interests and goals. The general zoology option provides a broad, solid foundation in zoology. It is aimed especially at students desiring a well-rounded background for further professional studies or for entry into the work force in areas such as wildlife biology or fisheries. Students aspiring to enter medical, or dental school will find the pre-medicine / pre-dentistry option to be particularly appropriate. The pre-medicine / pre-dentistry option is offered by the School of Biological Sciences as a course program designed to provide a solid academic foundation that successfully prepares the student for admission into medical or dental school. The pre-veterinary/animal care option prepares students for careers involving animal care and maintenance in research institutions, zoos, aquaria, and clinics and for application to colleges of veterinary medicine.

We expect that students graduating with a B.S. in zoology will have acquired: (1) an understanding of the biology of both invertebrate and vertebrate animals at all levels of biological organization, from genes to ecosystems; (2) a capacity for and interest in continued learning; (3) the ability to apply critically their knowledge and practical skills to real-life problems, and (4) the ability to communicate effectively with diverse audiences, both orally and in writing.

**Transfer Students**

Science courses taken at other institutions will be evaluated and credits accepted where possible. Inquiries should be directed to the Associate Director of Undergraduate Program.

**Graduate Programs**

At the graduate level, the school awards Masters of Science degrees in biology, botany, and zoology, and doctoral degrees in botany and zoology. Faculty interests and research programs are diverse, ranging from cellular and developmental biology, through various aspects of organismal biology to ecology and evolutionary biology. A list of specific faculty interests can be obtained at sbs.wsu.edu or by writing to the school.

**Preparation for Graduate Study in Botany or Zoology**

Students with undergraduate majors in such fields as microbiology, biology, botany, zoology, and plant or animal sciences may be prepared for graduate study in the School of Biological Sciences. Graduate Record Examination scores from the general aptitude section are required.

**Schedules of Studies**

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

**BIOLOGY - BOTANY OPTION (120 HOURS)**

**First Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biol 106 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 105 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
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**Second Term**

<table>
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<tr>
<th>Course</th>
<th>Hours</th>
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<tr>
<td>Biol 107 [B] (GER)</td>
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<tr>
<td>Chem 106 [P] (GER)</td>
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</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Math 140 [N] or 171 [N] (GER)</td>
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**Second Year**

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<th>Course</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
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<tr>
<td>Biol 301</td>
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<td>Chem 345</td>
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<tr>
<td>Phys 101 [P] or 201 [P] (GER)</td>
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**Second Term**

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<th>Course</th>
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<td>Communication Proficiency [C,W] (GER)</td>
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<td>Phys 102 [P] or 202 [P] (GER)</td>
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**Social Sciences [S,K] (GER) | 3**
**Electives | 6**
**Complete Writing Portfolio**

**Third Year**

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
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<td>Biol 320</td>
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<td>Biol 372 [M]</td>
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<td>Stat 212, 412, or Psych 311</td>
<td>3 or 4</td>
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**Second Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [L,G,K] or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Biol 332</td>
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<td>Biol 460, 462, or 469</td>
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<td>Program Option Courses or Electives</td>
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**Fourth Year**

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<td>Arts &amp; Humanities [H,G], Intercultural Studies [L,G,K] or Social Sciences [S,K] (GER)</td>
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<td>Biol 405</td>
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<td>Biol 409</td>
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<td>Program Option Courses or Electives</td>
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**Second Term**

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<td>Tier III Course [T] (GER)</td>
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Footnotes

1 A minimum of 3 credits of biological science courses should be selected from the following courses or chosen in consultation with an advisor: Biol 325, 393, 406, 417, 429, 431, 440, 352, 460, 462, 463, 469, 470, 499, 504, 512, 513, 516, 518, 586, MBlOe 401 (Biol 500-level courses may be taken with approval of the advisor and instructor).

**BIOLOGY - ECOLOGY AND EVOLUTIONARY BIOLOGY OPTION (120 HOURS)**

**First Year**

<table>
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<th>Course</th>
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<tr>
<td>Biol 106 [B] (GER)</td>
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<td>Chem 105 [P] (GER)</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<td>GenEd 111 [A] (GER)</td>
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**Second Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biol 107 [B] (GER)</td>
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<tr>
<td>Biol 106 [P] (GER)</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
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<tr>
<td>Math 140 [N] or 171 [N] (GER)</td>
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**Second Year**

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<tr>
<th>Course</th>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>Biol 301</td>
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<tr>
<td>Chem 345</td>
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<tr>
<td>Phys 101 [P] or 201 [P] (GER)</td>
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**Second Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tr>
<td>Communication Proficiency [C,W] (GER)</td>
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<td>Phys 102 [P] or 202 [P] (GER)</td>
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**Social Sciences [S,K] (GER) | 3**
**Complete Writing Portfolio**
<table>
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<th>Third Year</th>
<th>Hours</th>
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<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
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<td>Stat 212, 412, or Psych 311</td>
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<td>Fourth Year</td>
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<td>Program Option Courses or Electives</td>
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<td>Tier III Course [T] (GER)</td>
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**Footnotes**

1. 21 hours from a minimum of four of the following five areas: physiology / biochemistry, ecology, evolution, animal, plant, conservation / management. See advisor.

**BIOLOGY - EDUCATION OPTION (142 HOURS)**

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<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Biol 107 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 106 [P] (GER)</td>
<td>4</td>
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<tr>
<td>Math 140 [N] or 171 [N] (GER)</td>
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<td>Chem 345</td>
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<td>T &amp; L 317</td>
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<td>Biol 372 [M]</td>
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<td>Stat 212, 412, or Psych 311</td>
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**Second Term**

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<td>MBioS 305</td>
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<td>MBioS 306</td>
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<tr>
<td>T &amp; L 464</td>
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<tr>
<td>T &amp; L 465</td>
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<td>T &amp; L 466</td>
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**Fourth Year**

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<tbody>
<tr>
<td>Biol 405</td>
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<td>Biol 430</td>
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<td>EdPsy 468</td>
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<td>MBioS 303</td>
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<td>T &amp; L 469</td>
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**Fifth Year**

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<td>Biol 430</td>
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<td>EdPsy 468</td>
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<tr>
<td>MBioS 303</td>
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<tr>
<td>T &amp; L 467</td>
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**Footnotes**

1. A three-week intensive experience in a K-12 public or private school in the student’s home community takes place mid-May through early June after the completion of WSU’s spring semester.

2. A minimum of 9 credits of biological science courses should be selected from the following courses or chosen in consultation with an advisor: Biol 251, 305, 315, 320, 322, 324, 330, 332, 353, 412, 418, 423, 428, 432, 438, 452, 460, 462, 463, 469, Entom 343, MbioS 340, 440, 442, 450. One course must fulfill [M] requirement.

**BIOLY - ENTOMOLOGY OPTION (120 HOURS)**

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<tr>
<td>Biol 107 [B] (GER)</td>
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<td>Chem 106 [P] (GER)</td>
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<td>Communication Proficiency [C,W] (GER)</td>
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<td>Math 140 [N] or 171 [N] (GER)</td>
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**Second Year**

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<td>Entom 344 [M]</td>
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<td>Biol 120, 320, or 332</td>
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<td>Biol 301</td>
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<td>Phys 101 [P] or 201 [P] (GER) Complete Writing Portfolio</td>
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**Third Year**

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<td>Biol 352 or MbioS 401</td>
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<td>Stat 212, 412, or Psych 311</td>
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**Fourth Year**

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<td>Biol 372 [M]</td>
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<td>MbioS 303</td>
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**BIOLY - GENERAL OPTION (120 HOURS)**

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<td>Chem 105 [P] (GER)</td>
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<td>MbioS 303</td>
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<td>Phys 102 [P] or 202 [P] (GER)</td>
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<td>Biol 372 [M]</td>
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<td>Program Option Courses or Electives</td>
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**BIOLOGY - PRE-PHYSICAL THERAPY / PRE-OCCUPATIONAL THERAPY / PRE-PHYSICIAN’S ASSISTANT OPTION** *(120 HOURS)*

### First Year

**First Term**
- Biol 106 [B] (GER) 4
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

**Second Term**
- Biol 107 [B] (GER) 4
- Chem 106 [P] (GER) 4
- GenEd 111 [A] (GER) 3
- Math 140 [N] or 171 [N] (GER) 4

### Second Year

**First Term**
- Chem 345 4
- Psych 105 [S] (GER) 3
- Soc 101 [S,D] (GER) 3

**Second Term**
- Arts & Humanities [H,G] (GER) 3
- Biol 251 4
- Biol 301 4
- Psych 361 [S] (GER) 3
- Complete Writing Portfolio

### Third Year

**First Term**
- Biol 315 4
- Biol 393 [M] or 490 [M] 2
- Phys 101 [P] or 201 [P] (GER) 4
- Stat 212, 412, or Psych 311 3
- Elective 2

**Second Term**
- Biol 372 [M] 4
- Engl 402 [W] (GER) 3
- MvtSt 380 3
- Phys 102 [P] or 202 [P] (GER) 4

### Fourth Year

**First Term**
- Arts & Humanities [H,G], Intercultural Studies [L,G,K] or Social Sciences [S,K] (GER) 3
- Intercultural Studies [L,G,K] (GER) 3
- MBioS 305 3
- MBioS 306 2

**Second Term**
- Arts & Humanities [H,G], Intercultural Studies [L,G,K] or Social Sciences [S,K] (GER) 3
- MBioS 303 3
- MBioS 401 3
- MBioS 306 2

Footnotes

1. A minimum of 9 credits of Biological Science courses should be selected from the following courses or chosen in consultation with an advisor: Biol 305, 352, 393, 410, 412, 414, 418, 423, 428, 432, 438, 447, 461, 469, 486, 495; Entom 343-344, 448; or MBioS 303.

### Second Year

**First Term**
- Biol 405 3
- Tier III Course [T] (GER) 3
- Program Option Courses or Electives 1 10

**Second Term**
- Biol 107 [B] (GER) 4
- Chem 106 [P] (GER) 4
- GenEd 111 [A] (GER) 3
- Math 140 [N] or 171 [N] (GER) 4

### Third Year

**First Term**
- Arts & Humanities [H,G] (GER) 3
- Chem 345 4
- Communication Proficiency [C,W] (GER) 3
- Intercultural Studies [L,G,K] (GER) 3
- Program Option Courses or Electives 1 7

**Second Term**
- Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER) 3
- Biol 301 4
- Program Option Courses or Electives 1 3-6
- Stat 212, 412, or Psych 311 3 or 4
- Complete Writing Portfolio

### Fourth Year

**First Term**
- Biol 350 or 353 4
- Biol 405 3
- Program Option Courses or Electives 1 6-8

**Second Term**
- Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER) 3
- MBioS 303 3
- MBioS 401, or Electives 3 3

Footnotes

1. Select from Biol 322, 393, 410, 418, 495, Phil 365.

**ZOOLOGY - PRE-MEDICINE/PRE-DENTISTRY OPTION** *(122 HOURS)*

### First Year

**First Term**
- Biol 106 [B] (GER) 4
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

**Second Term**
- Biol 107 [B] (GER) 4
- Chem 106 [P] (GER) 4
- GenEd 111 [A] (GER) 3
- Math 140 [N] or 171 [N] (GER) 4

### Second Year

**First Term**
- Arts & Humanities [H,G] (GER) 3
- Chem 345 4
- Communication Proficiency [C,W] (GER) 3
- Intercultural Studies [L,G,K] (GER) 3
- Program Option Courses or Electives 1 7

**Second Term**
- Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER) 3
- Biol 301 4
- Program Option Courses or Electives 1 3-6
- Stat 212, 412, or Psych 311 3 or 4
- Complete Writing Portfolio

### Third Year

**First Term**
- Biol 321, 322, or 324 4
- Phys 101 [P] or 201 [P] (GER) 4
- Program Option Course or Electives 1 6 or 7
- Social Sciences [S,K] (GER) 3

**Second Term**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Biol 321, 322, or 324 4
- Biol 372 [M] 4
- Phys 102 [P] or 202 [P] (GER) 4

### Fourth Year

**First Term**
- Biol 350 or 353 4
- Biol 405 3
- Program Option Courses or Electives 1 6-8

**Second Term**
- Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER) 3
- MBioS 303 3
- MBioS 401, or Electives 3 3

Footnotes

1. Select from Biol 322, 393, 410, 418, 495, Phil 365.
### Biological Sciences

#### Description of Courses

<table>
<thead>
<tr>
<th>Biological Science Courses</th>
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<tbody>
<tr>
<td><strong>Biol</strong></td>
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<tr>
<td><strong>101 [B] General Biology Lecture</strong></td>
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<tr>
<td>Understanding biology as a science and its effect on issues within society. Lecture only; not for students majoring in the life sciences. Credit granted only to students who have not completed Biol 102. Credit not granted to students who have already completed Biol 106 and/or 107. Students who declare a major requiring Biol 106 and/or 107 will need to complete those courses for credit toward their major.</td>
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| **102 [B] General Biology Laboratory** | 1 (0-3) |
| Prereq college-level non-laboratory general biology course. Understanding biology as a science and its effect on issues within society. Laboratory only; not for students majoring in the life sciences. Credit granted only to students who have already completed Biol 102. Credit not granted to students who have already completed Biol 106 and/or 107. Students who declare a major requiring Biol 106 and/or 107 will need to complete those courses for credit toward their major. |

| **106 [B] Introductory Biology: Organismal Biology** | 4 (3-3) |
| First or second semester of a one-year sequence (Biol 106/107 or Biol 107/106) for science majors and pre-professional students. Biology of organisms; plants, animals, ecology and evolution. |

| **107 [B] Introductory Biology: Cell Biology and Genetics** | 4 (3-3) |
| Prereq one semester of chemistry or c/. First or second semester of a one-year sequence (Biol 106/107 or Biol 107/106) for science majors and pre-professional students. Cell biology and genetics of prokaryotes and eukaryotes. |

| **120 [B] Introduction to Botany** | 4 (3-3) |
| A survey of the plant kingdom; structure and function of vascular plants. |

| **135 [B] Animal Natural History** | 3 |
| Identification, life history, habitat relations, ecology, behavior, and conservation of animals commonly found in the Pacific Northwest. |

| **150 [Q] Evolution** | 3 |
| Basic principles and implications of Darwinian evolution. |

| **201 [B] Contemporary Biology** | 1 |
| Prereq Biol 101, 102, 107, 120, or MBioS 101. Biological information that provides a framework for understanding life processes; impact of biological information on human affairs. |

### Zoology - Pre-Veterinary/Animal Care Option (120 Hours)

A minimum of six years is required to obtain the DVM degree. Two or more years of preprofessional (pre-veterinary) training must be taken followed by four years of professional study in veterinary medicine.

The following curriculum will allow students to finish preprofessional academic requirements in two years. This schedule is rigorous. A student who cannot maintain a high GPA following this schedule should choose to finish the preprofessional requirements in three years.

All preprofessional academic requirements must be completed by the end of the academic year during which the application is under consideration. Students wishing to apply to Veterinary School during the sophomore year must complete the Graduate Record Exam (GRE) General Test and have sufficient Veterinary medical exposure and/or animal experience. Applications are due by October of the sophomore year if prerequisites will be met by the end of the sophomore year.

#### First Year

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<td>MBioS 303</td>
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<td>Biol 372 [M]</td>
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<td>Program Option Courses or Electives</td>
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#### Minors

**Biology**

A minor in biology requires a minimum of 20 hours in Biol coursework including Biol 106, 107, 301 and 8 additional hours at the 300-level or above. No more than 2 hours in Biol 495, 496 or 499 may be included in the 20 hours. 10 credit hours must be earned in residence at WSU. Students who major in biology or zoology cannot be granted a minor in biology.

**Zoology**

Requires a minimum of 20 hours, including Biol 106, 107, 321, 322, or 324; 8 additional hours of biological sciences courses focused on animals, 12 of which must be upper-division. No more than 2 hours of Biol 496, 497, 498, or 499 may be included in the 20 hours. Credit hours for the minor must include 9 hours taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

#### Certificates

**Certificate in Quantitative Biology**

The certificate in quantitative biology requires 28 credit hours including Math/Biol 340 and Math/Biol 494. In addition to the two required courses, students must take at least 12 hours of courses in mathematics, statistics, or computer science of which at least 8 hours must be at the 300-level or above and at least 12 hours of life sciences courses of which at least 8 hours must be at the 300-level or above. A list of recommended courses is provided in the departments. The requirement for 300-level or above may include independent research credits. However, no more than 4 hours of S, F graded coursework (including Math/Biol 494 and 499) may count toward the 28 credits. No more than 7 out of the 28 credits may be transfer credits. Students must earn a cumulative GPA of 2.5 and no less than a C for courses requiring Biol 106 and/or 107 will need to complete those courses for credit toward their major.
210  


220  

Medical Terminology 1 Prereq Biol 315; Biol 251 or 353 rec; permission of instructor. Terms and word constructions for health care occupations; format and function of medical records.

251  

Introductory Human Physiology 4 (3-3) Rec one semester general biology and one semester chemistry. Basic physiological processes in humans from the cellular to the organismal level.

301  

General Genetics 4 Prereq Biol 106 and 107; two semesters Chem. Same as MBioS 301. Credit not normally granted for MBioS 301/ Biol 301 and Biol 408.

315  

Introductory Plant Physiology 4 (2-6) Prereq Biol 102, 106 or c//, or 120. Identification and classification of vascular plants with emphasis on the local flora.

318  

Comparative Vertebrate Anatomy 3 Prereq Math 140, 172 and 3 hours of biology. Same as Math 340.

320  

Comparative Physiology 4 (3-3) Prereq Biol 106. Analysis of systems and integrative physiology with an emphasis on evolutionary adaptation among mammalian and non-mammalian vertebrates.

325  

Plant Biology 3 Prereq Biol 107, organic chemistry, certified major. Function and control at the organ-organismic level.

332  

Systematic Botany 4 (2-6) Prereq Biol 102, 106 or c//, or 120. Identification and classification of vascular plants with emphasis on the local flora.

340  

Introduction to Mathematical Biology 3 Prereq Math 140, 172 and 3 hours of biology. Same as Math 340.

350  

Comparative Physiology 4 (3-3) Prereq Biol 106. Analysis of systems and integrative physiology with an emphasis on evolutionary adaptation among mammalian and non-mammalian vertebrates.

352  

Cell Physiology 3 Prereq Biol 107, organic chemistry, certified major. Function and control at the organ-organismic level.

353  

Mammalian Physiology 4 (3-3) Prereq Biol 106; Biol 362; Rec c// in organic chemistry. Function and control at the organ-organismic level with emphasis on mammals, including humans.

372  


380  

Comparative Anatomy of Plants 3 Prereq college-level biology or chemistry. Introduction to the marine environment including oceanic, nearshore and estuarine communities of organisms and their roles and interactions.

389  


390  


393  


407  

Comparative Anatomy of Plants 3 Prereq Biol 106 or 120; organic chemistry or c//. Water relations, mineral nutrition, photosynthesis, respiration, and growth of plants. Via WHETS; not open to Pullman Campus students.

411  

Comparative Anatomy of Plants 3 (3-3) Prereq Biol 106 or 120; organic chemistry or c//. Water relations, mineral nutrition, photosynthesis, respiration, and growth of plants. Via WHETS; not open to Pullman Campus students.

416  


418  

Comparative Anatomy of Plants 4 (3-3) Prereq Biol 106 or 120; organic chemistry or c//. Water relations, mineral nutrition, photosynthesis, respiration, and growth of plants. Via WHETS; not open to Pullman Campus students.

420  

Mammalogy 4 (3-3) Prereq Biol 102 or 120; org chem or c//. Water relations, mineral nutrition, photosynthesis, respiration, and growth of plants. Lecture and laboratory.

427  

Comparative Anatomy of Plants 3 (3-3) Prereq Biol 106 or 120; org chem or c//. Water relations, mineral nutrition, photosynthesis, respiration, and growth of plants. Lecture and laboratory.

428  

Comparative Anatomy of Plants 4 (3-3) Prereq Biol 106, 107; 6 hours of physical and/or biological science. The ecology and conservation of marine organisms, communities, and ecosystems.

429  

Comparative Anatomy of Plants 3 (3-3) Prereq Biol 106 or 120; organic chemistry or c//. Water relations, mineral nutrition, photosynthesis, respiration, and growth of plants. Lecture and laboratory.

430  

Comparative Anatomy of Plants 4 (3-3) Prereq Biol 106, 107; 6 hours of physical and/or biological science. The ecology and conservation of marine organisms, communities, and ecosystems.

431  

Comparative Anatomy of Plants 4 (3-3) Prereq Biol 106, 107; 6 hours of physical and/or biological science. The ecology and conservation of marine organisms, communities, and ecosystems.

432  

Comparative Anatomy of Plants 4 (3-3) Prereq Biol 106, 107; 6 hours of physical and/or biological science. The ecology and conservation of marine organisms, communities, and ecosystems.

436  

Comparative Anatomy of Plants 3 (3-3) Same as NATRS 431. Credit not granted for both Biol 436 and 536.


451 Comparative Vertebrate Reproduction 3 Prereq Biol 106. Physiology of major events in reproductive cycles of vertebrates, emphasizing mammals. Cooperative course taught by UI (Biol 450), open to WSU students.

456 Neuroethology 3 Prereq Biol 301, MBioS 303, or an introductory neuroscience course; Stat 412 or c/. Introduction to neural mechanisms underlying natural animal behaviors from the cellular level to the organismal level.

462 Community Ecology 3 Prereq Biol 106. Assembly, essential properties, levels of interactions, succession, and stability of natural communities; emphasizes an experimental approach to community investigation. Credit not granted for both Biol 462 and 562.

465 Field Stream Ecology 2 Prereq general ecology. Ecological roles of immature insects in different size streams; pattern changes along the stream continuum; other ecological characteristics.

466 Population Biology and Genetics 3 (2-3) Prereq Biol 301. Population and gene frequency dynamics as fundamental units in ecological interaction and evolutionary change.

470 Diversity of Plants 3 Morphological, life history, and ecological diversity of major plant clades; emphasis on principles of homology, character transformation, and macroevolution.

480 [M] Writing in Biology 2 Discussion and practice in relating thinking and writing; popular and professional communication in biology.

486 Marine Invertebrate Communities 2 (0-6) Biol 106, 107; 6 hours of physical and/or biological science. Survey of marine invertebrates and their habitats. One-week field/lab course at a marine station.


491 Physical Therapy Clinical Experience V 1-4 May be repeated for credit; cumulative maximum 20 hours. Prereq Psych 106; Biol 315; major in biology; junior standing; by interview only. Work experience under supervision of a qualified professional in treatment of human physical disabilities. S, F grading.

492 Topics in Biology V 1-3 May be repeated for credit; cumulative maximum 6 hours.

493 Seminar in Mathematical Biology 1 May be repeated for credit; cumulative maximum 4 hours. Prereq one course in math and one course in biology. Same as Math 494. S, F grading.

495 Internship in Biology, Botany, and Zoology V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq major in Biol or Zool, by interview only. Experience in work related to specific career interests. S, F grading.


497 Instructional Practicum V 1-4 May be repeated for credit; cumulative maximum 8 hours. Academic traineeship in laboratory teaching and tutoring.

498 Senior Thesis 3 Prereq senior standing, 4 research hours. Experimental/literature research leading to written thesis and oral examination.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

500 Seminar 1 May be repeated for credit. Prereq 20 hours Biol. S, F grading.

501 Proposal Defense Seminar 2 Research proposal defense as part of the preliminary examination for candidacy in the Ph.D. program.

504 Experimental Methods in Plant Physiology 3 (2-3) Rec Biol 320. Advanced techniques and instrumental methods applicable to research in plant physiology.

506 Microtechnique 4 (2-6) Prereq graduate standing; by interview only. Same as E Mic 506.

509 Plant Anatomy 4 (2-6) Graduate-level counterpart of Biol 409; additional requirements. Credit not granted for both Biol 409 and 509.

510 Fish Population Ecology 2 Review of abiotic and biotic factors controlling or regulating fish population densities and critical review of relevant literature. Cooperative course taught by UI (Fish 514), open to WSU students.

511 Reproductive Biology of Fishes 2 Prereq graduate standing. A graduate-level course covering all aspects of the reproductive biology of fishes. Cooperative course taught by UI (Biol 558), open to WSU students.

512 Molecular Mechanisms of Plant Development 3 Prereq Biol 320. Physiology of growth; metabolism during development and reproduction.

513 Plant Metabolism 3 Prereq Biol 320, MBioS 303. Metabolic processes unique to plants, including the primary incorporation of nitrogen, sulfur, carbon dioxide and phosphate into bio-molecules.

514 Fish Genetics 2 Prereq Biol 301. Chromosomal, biochemical, quantitative, and ecological aspects of fish genetics with emphasis on applications to aquaculture and fish management. Cooperative course taught by WSU, open to UW students (Fish 519).

515 Fish Physiology 4 Prereq Fish 511 and permission. Principles and methods used to study vital organs, organ systems, growth, and reproduction of fishes; emphasis on osmoregulation, metabolism, endocrinology, and respiration. Cooperative course taught by UI (Fish 511), open to WSU students.

516 Nutrient Transport and Partitioning in Plants 3 Prereq Biol 320. Structure, physiology, biochemistry and molecular biology of transport and partitioning of water, mineral nutrients and assimilated organic compounds within plants.

517 Stress Physiology of Plants 3 Prereq graduate standing. Temperature, light, salinity, water effects on physiological processes; mechanistic understanding of stress.

518 Photosynthesis, Photorespiration, and Plant Productivity 3 Prereq Biol 320 or MBioS 303 or c/. Photosynthesis, photorespiration and the interrelationship of those biochemical, physiological, and environmental factors which determine plant productivity.

519 Introduction to Population Genetics 3 Prereq Biol 301. Survey of basic population and quantitative genetics. Cooperative course taught by WSU, open to UI students (For 511/Gen 505).

520 Conservation Genetics 2 Prereq Biol 301. Genetic studies and approaches relevant to efforts to conserve threatened and endangered populations of organisms.

521 Quantitative Genetics 3 Prereq Biol 519 or permission of instructor. Fundamentals of quantitative genetics; evolutionary quantitative genetics.

523 Advanced Fishery Management 3 Contemporary management of marine and freshwater fish and shellfish populations; commercial, recreational and subsistence fisheries; policy interface of biological systems. Cooperative course taught by UI, open to WSU students (Fish 510).

525 Experimental Plant Ecology 1 (0-3) Same as NATRS 525.

526 Population Analysis 1 Prereq NATRS/Entom/Biol 529, biometry. Same as NATRS 526.

529 Principles of Population Dynamics 1 Prereq general ecology. Same as NATRS 529.

530 Statistical Ecology 4 (2-6) Prereq introductory statistics course. Collection and interpretation of ecological data according to biometrical procedures.

531 Principles of Systematic Biology 3 Prereq graduate standing. Systematic theory; history and current views; approaches to phylogenetic analysis and classification.

535 Angiosperm Families of the World 3
(2-3) Prereq Biol 332 or 431. Description, classification, and geographic distribution of families of flowering plants of the world.

536 Wildlife Nutrition 3 (2-3) Same as NATRS 531.

537 Plant Cell Biology 3 Prereq graduate standing. Structure and function of plant cells including membrane biology, protein targeting and molecular signaling with emphasis on current research.

540 Stable Isotope Theory and Methods 3 (2-3) Prereq graduate standing. Theory and practice of measuring stable isotope ratios of biologically important elements; training in the use of isotope mass spectrometers.

548 Evolutionary Ecology of Populations 3 Rec Biol 372, 405. Evolutionary dynamics of natural populations and the co-evolution of species. Cooperative course taught by WSU, open to UI students (WLF 548).

553 Development and Plasticity of the Nervous System 3 Comparative approach to neural development and repair in the invertebrates and vertebrates. Cooperative course taught jointly by UI WSU and UI (Biol 509).

555 General and Cellular Physiology 4 (3-3) Prereq cell physiology or genetics course. Same as V Ph 555.

556 Biochemical Adaptation 3 Prereq graduate standing. Relationships between enzyme/ macromolecule adaptation and animal performance.

557 Advanced Mammalian Physiology 4 Prereq V Ph 555. Same as V Ph 557.

558 Molecular and Cellular Reproduction 3 (2-2) Same as MBioS 528.

559 Hormones, Brain and Behavior 3 Prereq upper-division biology, psychology or anthropology course. Classical behavioral endocrinology from molecular to whole organisms, integrating evolutionary ecology, neuroendocrinology and behavioral neuroendocrinology.

560 Plant Ecophysiology 3 Prereq graduate standing. Relationships of biotic and abiotic environment to plant distribution and evolution through study of physiological processes.

561 Environmental Physiology 3 Prereq graduate standing. Individual and evolutionary adaptations to changing environments with emphasis on recent literature.

562 Community Ecology 3 Prereq Biol 106. Graduate-level counterpart of Biol 462; additional requirements. Credit not granted for both Biol 462 and 562.

563 Field Ecology 2 (0-6) Prereq Biol 562. Field implementation of descriptive and experimental techniques to quantify the structure, composition, and interactions within natural communities. Field trips required. Cooperative course taught by WSU, open to UI students (Biol 537).

564 Molecular Ecology and Phylogeography 3 Prereq Biol 301 or equivalent; Biol 405 or equivalent. Use of genetic markers for the study of ecological phenomena, including kinship, population structure, and phylogeography.

565 Topics in Ecology and Evolution V 1-3 May be repeated for credit; cumulative maximum 6 hours. Current topics in ecology, population, biology, evolution, behavior, systematics, and biogeography.

566 Mathematical Genetics 3 Prereq Math 273; MBioS 301; Stat 412, 430, or 443. Same as Math 563.

567 Ecological Restoration 3 Prereq graduate standing or by permission. Introduction to major issues in restoration ecology; major ecological dimensions of restoration.

568 Conservation Ecology 3 Prereq Graduate standing. Diagnosis of endangered species, population viability analysis, invasive species ecology, landscape ecology and ecosystem management.

569 Ecosystem Ecology and Global Change 3 Prereq graduate standing. Same as ES/RP 569.

570 Diversity of Plants 3 Prereq graduate standing. Graduate-level counterpart of Biol 470; additional requirements. Credit not granted for both Biol 470 and 570.

581 Comparative Biology of Social Traditions 3 Prereq Anth 260 or Biol 106; senior or graduate standing. Same as Anth 581.

582 Professional Communication in Biology 2 Prereq graduate standing. Mechanics and style of publishing biological findings; adaptation of writing to various venues and audiences.

586 Special Projects in Electron Microscopy 2 (0-6) or 3 (0-9) May be repeated for credit; cumulative maximum 4 hours. S, F grading.

587 Special Topics in Electron Microscopy 1 May be repeated for credit; cumulative maximum 4 hours. S, F grading.

595 Seminar II 1 May be repeated for credit; cumulative maximum 8 hours. Literature and problems.

596 Advanced Topics in Development V 1-3 Prereq Biol 321; MBioS 303 or 401. Current biochemical and ultra-structural research in developmental biology.

597 Teaching Practicum V 1-4 May be repeated for credit; cumulative maximum 4 hours. Zoology laboratory teaching internship. S, F grading.

598 IPEM Seminar 1 Prereq IGERT fellow. Same as Anth 596. S, F grading.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master's Special Problems, Directed Study and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

Electron Microscopy Courses

E Mic 506 Microtechnique 4 (2-6) Prereq graduate standing; by interview only. Modern methods for preparation of biological specimens for microscopy; paraffin and resin embedding, microtomy, anatomical, cytological and histochemical techniques.

507 Electron Microscopy Laboratory 4 (2-6) Prereq one year biology; one year org chem; one year phys; by interview only. Techniques of transmission electron microscopy, especially those applicable to biological materials; theory and practice for electron optics and specimen preparation.

586 Special Projects in Electron Microscopy 2 (0-6) or 3 (0-9) May be repeated for credit. Practical training in one or more areas of electron microscopy; TEM, SEM, ultramicrotomy, specimen processing; confocal fluorescent microscopy.

587 Special Topics in Electron Microscopy 1 May be repeated for credit; cumulative maximum 4 hours. S, F grading.

590 Advanced Topics in Botany V 1-4 May be repeated for credit. Recent research in plant science.

591 Seminar in Molecular Plant Sciences 1 Same as MPS 515.

592 Advanced Topics in Cell Biology V 1-3 Same as MBioS 526.

593 Seminar I 1 May be repeated for credit. Literature and problems.

594 Advanced Topics on Vertebrate Form and Function V 1-3 May be repeated for credit. Analysis of animal structure and function emphasizing the evolution of complex systems; constructive morphology; ecomorphology; phylogenetics; heterochrony; size and shape.

100

Department of Biological Systems Engineering

www.bsysc.wsu.edu

Smith Hall 213

509-335-1578

Professor and Department Chair, C. O. Stöckle; Professors, G. V. Barbosa-Cánovas, R. P. Calvarezi, S. Chen, L. G. James, F. Pierce, J. Tang; Associate Professors, M. J. Pitts, J. Q. Wu; Assistant Professors, P. M. Nakaqwa, M. Garcia-Perez, R. T. Peters, S. S. Sablani, J. L. Ullman.
BIOLOGICAL SYSTEMS ENGINEERING

Only graduate degrees are offered. See department for more information.

Description of Courses

Biological Systems Engineering Courses

BSysE

210 Biological Systems Analysis and Design
3 (2-3) Prereq Biol 107, Chem 105; Cpt S 153 or 203. Application of computer-assisted tools for the engineering analysis and design of biological systems.

215 Professional Preparation for Biological Systems Engineering
1 May be repeated for credit; cumulative maximum 3 hours. Preparation for professional, ethical, and social issues and for career development in biological engineering profession. S, F grading.

320 [M] Mechanics of Biomaterials
4 (3-3) Prereq BSysE 210, C E 211. Composition of biological materials, mechanical and thermal properties, chemical and biological changes. Cooperative course taught by WSU, open to UI students (BSyE 386).

351 Environmental Hydrology
3 Prereq Math 140, 171, 202, or 206. Hydrologic cycle; commonly used methods for analysis of components of the cycle; importance of hydrology to the environment. Credit not granted for both BSysE 351 and 353. Cooperative course taught by WSU, open to UI students (AgE 353).

410 [M] Project Design I
3 Prereq BSysE 310, 320. Part I of capstone engineering design project; customer needs, design requirements, conceptual design, business plan, project proposal, and presentation.

411 Project Design II
3 (1-6) Prereq BSysE 311 or c/. Detailed design of a biological engineering-related process, machine, structure, or system.

440 Biological Dynamics and Control Systems
3 (2-3) Prereq BSysE 210, Biol 107, Math 315, E E 304 or c/. Descriptions of biological systems interactions primarily in food processing and eco-environmental systems and strategies to control these systems.

441 Process Control
3 Prereq BSysE 310, Ch E 211 or Ch E 310. Same as Ch E 441.

452 Eco-environmental Engineering Design
3 (2-3) Prereq junior standing. Engineering design to monitor, evaluate, and minimize non-point pollution from agriculture, environmentally acceptable disposal of wastes; bioremediation. Cooperative course taught jointly by WSU and UI (BSyE 452).

455 Natural Systems for Wastewater Treatment
3 Prereq senior standing. Principles and design procedures of natural systems for wastewater treatment for agricultural and non-agricultural applications.

456 Surface Hydrologic Processes and Modeling
3 (2-3) Prereq Math 315; BSysE 351, C E 351, or Geol 475. Fundamental hydrologic processes, governing equations and solution methods, GIS techniques commonly used in hydrology, class project on modeling surface hydrology. Credit not granted for both BSysE 456 and 556.

457 Design for Watershed Management
3 (2-3) Prereq junior standing. Modeling water movement and mass transport; design for balance between animal, plant, soil, water, and air resources in watershed. Credit not granted for both BSysE 457 and 557. Cooperative course taught by WSU, open to UI students (BSyE 457).

482 Food Process Engineering Design
3 Prereq BSysE 481 or Ch E 330. Design of food processing systems; design and simulation of sterilization and pasteurization processes in foods. Credit not granted for both BSysE 482 and 582. Cooperative course taught by WSU, open to UI students (AgE 487).

483 Food Separation Processes Design
3 Prereq BSysE 482. Design of food separation unit operations including concentration, dehydration, and membrane processes. Credit not granted for both BSysE 483 and 583. Cooperative course taught by WSU, open to UI students (BSyE 483).

484 Thermal Processing of Foods
3 (2-3) Prereq Ch E 332 or M E 404. Principles and practices of food preservation methods based on application of heat. Credit not granted for both BSysE 484 and 584.

486 Food Rheology
3 (2-3) Prereq BSysE 481. Principles and applications on the rheology of foods, including fundamental and empirical equations; viscoelasticity; normal forces, time dependency and instrumentation. Credit not granted for both BSysE 486 and 586. Cooperative course taught by WSU, open to UI students (BSyE 486).

491 Advanced Topics
V 1-3 May be repeated for credit; cumulative maximum 8 hours. Prereq junior standing.

495 Internship in Biological Systems Engineering
V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq sophomore standing. Prior approval of supervisor and advisor required. Work experience related to academic learning. S, F grading.

499 Special Problems
V 1-4 May be repeated for credit. S, F grading.

510 Fundamentals of Research
3 Prereq graduate standing. The research process and the graduate research project; objectives, techniques, and challenges; scientific method and the design process; use of literature; creativity; writing and speaking about research; preparation of a research proposal. Cooperative course taught by UI (For 510), open to WSU students.

512 Research and Teaching Methods
2 (1-3) Prereq graduate standing. Analysis and scientific communication.

541 Instrumentation and Measurements
3 (2-3) Prereq Math 172; Phys 102 or 202. Instrumentation systems and measurement concepts, electronic signal-conditioning components and circuitry, digital electronics and microprocessor basics. Cooperative course taught by UI (AgE 541), open to WSU students.

551 Advanced Biological Systems Engineering Topics
V 1-4 May be repeated for credit; cumulative maximum 6 hours. Directed group study of selected advanced topics in biological systems engineering. Cooperative course taught by WSU, open to UI students (AgE 561).

552 Advanced Biological Systems Engineering Topics
V 1-4 May be repeated for credit. Directed group study of selected advanced topics in biological systems engineering. Cooperative course taught by WSU, open to UI students (AgE 561).

555 Natural Systems for Wastewater Treatment
3 Prereq senior or graduate standing. Principles and design procedures of natural systems for wastewater treatment for agricultural and non-agricultural applications.

556 Surface Hydrologic Processes and Modeling
3 (2-3) Graduate-level counterpart of BSysE 456; additional requirements. Credit not granted for both BSysE 456 and 556.

557 Design for Watershed Management
3 (2-3) Prereq junior or graduate standing. Graduate-level counterpart of BSysE 457; additional requirements. Credit not granted for both BSysE 457 and 557. Cooperative course taught by WSU, open to UI students (BSyE 457).

558 Fluid Mechanics of Porous Materials
3 Statics and dynamics of multi-flow systems in porous materials, properties of porous materials; steady and unsteady flow. Cooperative course taught by UI (AgE 558), open to WSU students.

562 Systems in Integrated Crop Management
3 (2-3) Prereq one semester calculus. Same as Entom 562.

581 Advanced Physical Properties of Foods
3 Prereq BSysE 481, Math 315. Analysis, modeling, and experimental procedures to measure food physical properties for use in food processing system design.

582 Food Process Engineering Design
3 Prereq BSysE 481 or Ch E 330. Graduate-level counterpart of BSysE 482; additional requirements. Credit not granted for both BSysE 482 and 582. Cooperative course taught by WSU, open to UI students (AgE 587).

583 Food Separation Processes Design
3 Prereq BSysE 482. Graduate-level counterpart of BSysE 483; additional requirements. Credit not granted for both BSysE 483 and 583. Cooperative course taught by WSU, open to UI students (BSyE 483).
drive the execution and delivery of transformational innovations across disciplines and around the world.

The College of Business fosters positive societal change by advancing the understanding of the impact of business on society and the environment, enabling graduates to lead responsibly and make meaningful contributions to the world's business communities.

Students enjoy top rate facilities in Todd Hall, the home of the college in the heart of the WSU campus. Wireless computer connectivity in every classroom and study area enables students to collaborate both in and out of the classroom. Facilities such as the Boeing Wireless Classroom, the Scott and Linda Carson Center for Professional Development, the MBA classroom, the Financial Markets Lab, and the new Center for Behavioral Business research (currently in development) support the delivery of cutting-edge content and enable students to develop real-world skills.

The College of Business is among 2 percent of business schools worldwide to achieve AACSB accreditation at the bachelor, master, and doctoral levels (Association to Advance Collegiate Schools of Business). Three programs - Hospitality Business Management, International Business, and Entrepreneurship - are ranked in the Top 25. The popular Information Systems program is benchmarked as No. 1 in the Northwest for having the most comprehensive curriculum and largest department of its kind. MBA graduates work for leading Fortune 500 companies, Ph.D. graduates are sought by leading universities and organizations, and many students earn professional designations in their fields. Many CB graduates launch their own businesses and become leaders in diverse industries.

WSU business studies are available in Pullman; at urban campuses in Vancouver, Tri-Cities, and Spokane; and, through the University's Distance Degree Program. Full-time professional advisors assist with academic planning. Scholarships, fellowships, and assistantships are often available. For more information and news about the college, its students, and programs, visit the Web site at www.business.wsu.edu.

The faculty in the College of Business have identified six competencies our students should have upon completion of an undergraduate degree in business: 1) mastery of core business knowledge and skills; 2) critical thinking, the ability to think about problems in a structured way; 3) innovative and entrepreneurial thinking, unstructured critical thinking and ability to translate ideas into action; 4) the ability to write clearly and concisely without sacrificing content; 5) the ability to communicate well orally; and 6) the ability to work effectively in and lead work teams.

Certification Requirements

Given high demand for business courses and strict accreditation requirements, certifying as a business major is competitive and course enrollments are limited. A student must meet the following minimum requirements to be eligible to apply to certify a major in business: 1) Complete the following certification courses with a GPA of 2.50 or higher: Acctg 230, 231; B Law 210; MgtOp 215; EconS 101, 102; Engl 101; Math 201, 202; and MIS 250; 2) Have a WSU cumulative GPA of at least 2.5; and 3) Have earned at least 60 credit hours. Students will then be placed in rank order based on cumulative GPA and other performance criteria. The top students then are certified based on the number of spots available that semester.

To be eligible to apply to certify a business minor, a student must be certified in a major, have a cumulative GPA of at least 2.5, and have earned at least 60 credit hours. Students will then be placed in rank order based on cumulative GPA and other performance criteria. The top students then are certified based on the number of spots available that semester.

Students on the Pullman campus must apply online for enrollment into the Business and Business Hospitality Business Management degree programs at www.business.wsu.edu/advising to be considered in the applicant pool.

Graduation Requirements

A minimum business GPA of 2.5 is required for graduation.

General Program Requirements

General course requirements, core courses, and fields of specialization are presented below. Requirements vary depending upon the field of specialization selected. For a detailed description of degree requirements (with changes approved since publication of the latest catalog), see current degree requirements for BA majors, available in the College of Business.

By the completion of 60 hours of credit, all students, including transfer students, must have completed English, Math and 100-200-level CB core courses: Acctg 230, 231; B Law 210; MgtOp 215; EconS 101, 102; Engl 101; Math 201, 202; and MIS 250. Enrollment in 300-level business courses is restricted to those students who have met these requirements and have certified as BA or HBM majors. Students certified in non-business majors may enroll in required 300-400-level business courses as space permits.

All students majoring in business must complete 50% of their course work outside of the College of Business.

WSU Course Requirements: At least 50% of business core and major specialization courses and at least nine 300-400-level business/economics courses must be WSU courses. A WSU course is a course that does not require evaluation for transfer credit.

The chair of the department and/or the associate dean of the college must approve in writing any business courses to be satisfied by transfer, correspondence, independent study, or other credit. Additional transfer, correspondence, and independent study credit (within University limits on these credits) may count toward the 120 hours required for the degree and/or satisfy requirements other than major courses.

Only general elective courses that are not GERs, not core/major requirements, and not offered by the CB may be taken pass, fail.

An honors senior project is required for Honors students.

Global Learning Requirement

Students within the College of Business must complete one of the following Global Learning requirements:

College of Business

www.business.wsu.edu

Todd Hall 570
509-335-3896

The College of Business at Washington State University is preparing students to become purposeful, innovative, versatile leaders with the skills and knowledge to succeed in the global marketplace. CB graduates lead insightfully by skillfully applying core business competencies, employing a global perspective, and embracing diversity.

CB students, graduates, and researchers apply business tools to generate commercial impact. An integrated approach to business and entrepreneurship enables students to successfully
1. Study abroad for 6 or more credit hours. Two smaller study abroad programs may be cumulated to meet the entire six credit hour requirement. International students in the College of Business (not including DDP students) will meet their study abroad requirement through their study in the United States.

2. Complete a major or minor in a foreign language, Global Studies, or International Business. Honors College students that meet their demonstrated proficiency in a foreign language will also be deemed to have met the College of Business Global Learning requirement.

3. Complete a certificate with a major international component such as the Asia Program certificate.

4. Complete any two of the following requirements:
   a. a brief study abroad program of less than 6 credit hours,
   b. an international internship approved by the International Business Institute (maximum of three credit hours),
   c. a College of Business international course including IBUS 380, any International Business Institute 300 or 400 level course, any cross-listed course offered by the International Business Institute,(see your advisor for classes)** or
   d. an accepted international course (G, K, Tier III Capstone course as approved through the International Business Institute**), or
   e. an accepted petition to the International Business Institute to allow the use of extensive international travel experiences at the collegiate level for up to three credit hours toward the Global Learning Requirement. Normally such an experience will be at least 3 months in duration. Credit for I Bus 498 or 499 may be given upon pre-approval.

5. Complete a minimum of one year international experience in any of the following areas: military service, Peace Corps, Volunteer work with an organization, missionary work, or other. Documentation is required for approval.

* Interpretations regarding the proposed policy will be made by the administrative head of the International Business Institute.

** Students may choose to enroll in the course prefix of their preference. For example, either Mktg 482 or IBus 482 may be used equivalently to satisfy this requirement.

*** Other courses may also be used under this guideline if approved through the International Business Institute.

Second Bachelor's Degree

Students who have received a bachelor's degree in another area may obtain a Bachelor of Arts degree in Business Administration by presenting total credits of at least 150 hours and by fulfilling the following departmental requirements: Acctg 230, 231; B Law 210; ComS 301 or H D [C]; EconS 101, 102; Engl 402 [W] or 403 [W]; Fin 325; Math 201, 202; MgtOp 215, 301, 340; MgtOp 491 or 492; MIS 250; Mktg 360; Pol S elective; Soc or Psych [S]; and the courses required for the student's chosen major in business.

The second degree can usually be completed in less than two years, depending on the number of business requirements completed as part of the first undergraduate degree. Second degree students must also go through the certification process (see Certification Requirements above) before they can enroll in 300-400-level business courses. Students should consult the CB Advising Office for specific requirements.

Transfer Students

Students planning to transfer to Washington State University at the end of the freshman or sophomore year should follow, as closely as possible, the general and core course requirements set forth above. If this is done, there should be no difficulty in completing the requirements for the bachelor's degree within the normal period of four years. It should also be noted that courses taken at community colleges are not accepted as transferable equivalents to 300-400-level courses at WSU.

Description of Courses

Business Administration Courses

B A 594 Seminar in Research Techniques 3 Advanced doctoral-level topics in research techniques.

596 Doctoral Topics V 1-4 May be repeated for credit; cumulative maximum 15 hours. Advanced topics in management and operations.

598 Research and Professional Development 1 May be repeated for credit; cumulative maximum 6 hours. Ph.D.-level professional development colloquium designed to improve research, teaching, and presentation skills and to provide professional socialization. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Department of Accounting

www.business.wsu.edu/accounting

Todd 242

509-335-8541

Professor and Department Chair, J. Sweeney, Professors, R. Greenberg, D. Sanders, R. Toolson, B. Wong-On-Wing; Associate Professors, J. Cote, S. Gill, C. Latham, T. Nanamaker; Assistant Professors, S. Chan, J. Thompson, S. Thornburg, J. Thornton, M. Yu, J. Zuber.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

ACCOUNTING AND INFORMATION SYSTEMS REQUIREMENTS (121 HOURS)

The objectives of the Bachelor of Arts in Business Administration with a major in accounting and information systems are to provide knowledge about practical and conceptual accounting, management information systems, and the use of accounting information for managerial decision-making purposes. This preparation provides career opportunities in private, governmental, and non-profit accounting and information systems, consulting in public accounting and management consulting firms.

First Year

First Term

EconS 101 [S] or EconS 102 [S] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math 201 3
Tier I Science [Q] (GER) 3

Second Term

Biological Sciences [B] (GER) 3 or 4
EconS 101 [S] or EconS 102 [S] (GER) 3
GenEd 111 [A] (GER) 3
Math 202 [N] (GER) 3
MIS 230 3

Second Year

First Term

Acctg 230 3
Arts & Humanities [H,G] (GER) 3
Intercultural Studies [I,G,K] (GER) 3
MIS 171 3
Physical Sciences [P] (GER) 3 or 4

Second Term

Acctg 231 3
B Law 210 3
ComS 102 [C], 235 [C], or H D 205 [C] (GER) 3
MgtOp 215 4
Soc or Psych [S] (GER) 3

Complete Writing Portfolio

Third Year

First Term

Acctg 330 3
Acctg 335 or 338 3
Fin 325 3
MgtOp 301 3
Mktg 360 3

Second Term

Acctg 331 3
Acctg 335 or 338 3
Engl 402 [W] or 403 [W] (GER) 3
MgtOp 340 3
MIS 322 3

Fourth Year

First Term

300-400-level Electives 3
Acctg 433 [M] 3
EconS 301, 320, or 322 3

103
ACCOUNTING REQUIREMENTS  
(120 HOURS)

The objectives of the Bachelor of Arts in Business Administration with a major in accounting are to provide knowledge about practical and conceptual accounting, basic accounting information systems, and the use of accounting information for managerial decision-making purposes. This provides preparation for careers in private, governmental, and non-profit accounting. It also provides a foundation to enter the Master of Accounting program for those interested in a professional career in public accounting or consulting.

First Year

First Term  
Acctg 230  3
Engl 101 [W] (GER)  3
GenEd 110 [A] (GER)  3
Math 201  3
Pol S Elective  3

Second Term  
Acctg 231  3
Math 202 [N] (GER)  3
Intercultural Studies [I,G,K] (GER)  3
Math 202 [N] (GER)  3
MIS 250  3

Second Year

First Term  
Acctg 232  3
Arts & Humanities [H,G] (GER)  3
GenEd 111 [A] (GER)  3
Physical Sciences [P] (GER)  3 or 4
Soc or Psych [S] (GER)  3

Second Term  
Acctg 233  3
B Law 210  3
ComSt 102 [C], 235 [C], or H & D 205 [C] (GER)  3
MgtOp 215  4
Pol S Elective  3
Complete Writing Portfolio

Third Year

First Term  
Acctg 330  3
Acctg 335 or 338  3
Fin 325  3
MgtOp 301  3

Second Term  
Acctg 333  3
Acctg 335 or 338  3
Elective  3
MgtOp 340  3

Tier III Course [T] (GER)  3

Fourth Year

First Term  
Acctg 420, 430, 434, 435, 438 [M], 439 [M], 443, B Law 487 or EconS 305  3
Acctg 433 [M]  3
Engl 402 [W] or 403 [W] (GER)  3
Electives  5

Second Term  
Acctg 438 [M] or 439 [M]  3
MgtOp 491 or 492  3
Two of Acctg 420, 430, 434, 435, 438 [M], or 439 [M], 443, B Law 487 or EconS 305  6
Elective  3

Footnotes

1. For a total of 7 hours of Biological and Physical Sciences.

Minors

Accounting

The minor in accounting requires Acctg 230, 231, 330, and 331. In addition, 6 hours from Acctg 335, 338, 433, 434, 435, 438, 439. A total of 6 hours of transfer work may be counted toward the minor requirements for courses at the 100- or 200-level only. All other course work for the minor must be WSU course work.

Description of Courses

Accounting Courses

Acctg

230 Introduction to Financial Accounting  3
Prereq sophomore standing. Introduction to corporate financial reporting via the preparation and interpretation of financial statements.

231 Introduction to Managerial Accounting  3
Prereq Acctg 230. Introduction to managerial accounting; generation and use of accounting data for planning and controlling business operations.

275 Special Topics: Study Abroad  3
Prereq senior standing. V 1-15 May be repeated for credit. S, F grading.

330 Intermediate Accounting I  3
Prereq Acctg 231. Theory underlying the determination of income; analysis of financial statements.

331 Intermediate Accounting II  3
Prereq Acctg 330. Continuation of Acctg 330.

335 Introduction to Taxation  3

338 Cost Accounting  3
Prereq Acctg 231; MgtOp 215; Math 107 or 201; Math 202. Management uses of cost information; cost systems and system design; cost analysis.

420 Accounting and Culture  3
Prereq Acctg 231. Cultural differences and how they affect accounting practices and standards in a variety of countries. Not an accounting technical course.

430 Advanced Accounting  3
Prereq Acctg 331. Enrollment limited to certified Acct or AIS majors or minors, Pullman and Vancouver campuses only. Partnership equities and extended forms of corporate ownerships and entities.

433 [M] Accounting Systems and Auditing  3
Prereq Acctg 330. Accounting systems design; internal control and computerization.

434 Accounting for Public Organizations  3
Prereq Acctg 331. Conceptual and procedural accounting issues involving public sector organizations.

435 Individual Income Taxes  3
Prereq Acctg 335. The study of individual income taxes from both compliance and planning perspectives. Credit not granted to those taking Acctg 335 prior to Fall 1999.

438 [M] Advanced Cost Accounting and Management  3
Prereq Acctg 338. Cost/managerial accounting as it is used for decision making and strategic planning; emphasis on budgeting, product cost, and performance measurement.

439 [M] Auditing  3
Prereq Acctg 433 or c//. Nature of auditing, generally accepted auditing standards, and audit procedures as related to auditing of financial statements by independent accountants.

443 Business Processes and Controls  3
Prereq Acctg 231. Introduction to business processes and internal controls, including risk assessment and internal audit.

498 Accounting Internship  3
Prereq sophomore standing. V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or non-profit organization. S, F grading.

499 Special Problems  3
Prereq sophomore standing. V 1-4 May be repeated for credit. S, F grading.

530 Accounting Theory  3
Prereq Acctg 331. Recent developments with respect to the determination of income and the valuation of assets.

532 Contemporary Accounting Cases and Problems  3
Prereq Acctg 331. Accounting theory applied to external financial reporting practices.

533 Administrative Control  3
Prereq enrollment in the MBA program. Managerial evaluation of budgeting, cost accounting, and financial analysis techniques; their utilization in control of operations.

535 Advanced Taxation  3
Prereq Acctg 335. Federal income tax impact on corporations, S corporations, partnerships, estates, trusts and their beneficial owners.
537 Professional Research 3 Prereq Accctg 331;  Accctg 335. Methodology used by accounting professionals to research applied problems in taxation, accounting, and auditing; communicate results.

538 Seminar in Cost/Managerial Accounting 3 Cost concepts, cost and managerial accounting systems; current issues and research in cost and managerial accounting.

539 Seminar in Public Accounting and Auditing 3 Prereq Accctg 439. Public accounting and auditing to present; current issues including statistical sampling and computers.

550 Introduction to Financial and Managerial Accounting 3 Prereq enrollment in the MBA program. Fundamentals of financial and managerial accounting; primarily for graduate students who wish to meet the MBA core requirements in accounting.

596 Doctoral Topics 3 May be repeated for credit; cumulative maximum 15 hours. Advanced topics in accounting.

600 Special Projects or Independent Study Variable credit S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

Business Law Courses

210 Law and the Legal Environment of Business 3 Fundamentals of business law; the legal system, legal reasoning, public, commercial, managerial and property law; and government regulation.

275 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

410 Commercial Law 3 Prereq B Law 210. Contracts, sales, leasing, and licensing; commercial paper; and debtor/creditor relations.

411 Managerial Law 3 Prereq B Law 210. Law of agency, partnerships, limited liability companies and corporations; and securities regulation.

414 [M] Law of Real Estate 3 Prereq B Law 210. Legal principles and precedents as they apply to the real estate environment.

415 [M] Law of International Trade 3 Prereq B Law 210. Legal organization of the international community; international aspects of trade and development, economic cooperation, and technical, social, and cultural cooperation.

416 [M] Public International Law 3 Prereq B Law 210. Law governing states, intergovernmental organizations, and nongovernmental organizations (including multinational enterprises); human rights law; environmental law; and dispute settlement.


487 Business Ethics 3 Prereq MgtOp 301. Same as MgtOp 487.

498 Business Law Internship V 2-15 May be repeated for credit, cumulative maximum 15 hours. Cooperative educational internship with a business, government or nonprofit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

510 Business Law and Ethics 3 Prereq enrollment in the MBA program. Legal process and reasoning; commercial, managerial, and employment law; government regulations; contracts, torts, crimes; ethical conflicts and ethical decision making.

511 Business Law II 3 Prereq B Law 210 or 510. Law of partnerships, corporations, securities regulations, negotiable instruments, secured transactions, property, insurance and bankruptcy; government regulation of businesses and professions.

Center for Entrepreneurial Studies

business.wsu.edu/entrepreneurship
Todd Hall 442
509-335-5051

Director of Entrepreneurial Studies L. Jessup; Faculty, Richard Reed; Instructors, M. Beattie, J. Harris, M. Mayes, D. McCarver, K. Owen, C. Sears.

The mission of the Center for Entrepreneurial Studies and the Entrepreneurial Studies Program is to enable students, business leaders, managers of governmental agencies, scientists, policy makers, and others, through our teaching and our research, to better capitalize on their ideas, inventions, and innovations. We help with the creation of new business ventures and, given the concern nationally that corporations are not managing innovation successfully and the implication that has for the national and global economy, we also prepare entrepreneurial leaders for business development within existing organizations. The Entrepreneurial Studies Program offers a major and minor within the Bachelor of Arts degree in Business Administration and organizes the Fall and Spring rounds of the annual WSU Business Plan Competition, which is open to all undergraduate and graduate students at WSU. In addition, we manage the MBA students’ required participation in the Competition and offer them other electives and opportunities. Students interested in starting their own business, running a family business, or looking for positions as general managers within existing organizations will find entrepreneurship an attractive major. We also conduct research with doctoral students from other disciplines who wish to work in the areas of entrepreneurship, technology transfer, commercialization, and the management of innovation.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

ENTREPRENEURSHIP REQUIREMENTS

The entrepreneurship major has been developed for students interested in venture management, new venture startups and small business and the management of family firms.

First Year

First Term

Hours

EconS 101 [S] or EconS 102 [S] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math 201 3
Tier I Science [Q] (GER) 3

Second Term

Hours

Biological Sciences [B] (GER) 3 or 4
EconS 101 [S] or EconS 102 [S] (GER) 3
Intercultural Studies [I,G,K] (GER) 3
Math 202 [N] (GER) 3
MIS 250 3

Second Year

First Term

Hours

Acctg 231 3
Acctg 331 3
Acctg 335 3
GenEd 111 [A] (GER) 3
Physical Sciences [P] (GER) 3 or 4
Soc or Psych [S,K] (GER) 3

Second Term

Hours

Acctg 231 3
B Law 210 3
ComSIt 102 [C], 235 [C], or H D 205 [C] (GER) 3
MgtOp 215 4
Pol S Elective 3
Complete Writing Portfolio

Third Year

First Term

Hours

300-400-level Electives 3
Fin 325 3
MgtOp 301 3
Mktg 360 3
E elective 3

Second Term

Hours

300-400-level Electives 3
EntreP 375 3
EntreP 426 3
MgtOp 340 3
One from Group A 3

Fourth Year

First Term

Hours

300-400-level Electives 3
Engl 402 [W] or 403 [W] (GER) 3
EntreP 489 3
EntreP 490 [M] 3
Tier III Course [T] (GER) 3
Second Term  
Entrp 485, 486, or 496 
Entrp 492 
MgtOp 491 
One from: Group A² 
Elective 

Footnotes
1 For a total of 7 hours of Biological and Physical Sciences.
2 Group A electives are: Acctg 338; B Law 410; EconS 301; Entrp 485, 496, 498 (3 hours), and 499 (3 hours); Fin 456; MIS 372 [M]; MgtOp 450, 455 [M]; Mktg 478 [M].

Minors
Entrepreneurship
Three from EconS 301, Fin 325, MgtOp 301, Mktg 360; and three from Entrp 375, 426, 485, 489, 490 [M], 492 [M], 496, 498 (no more than 3 hours), or 499 (no more than 3 hours).

A total of 6 hours of transfer work may be counted toward the minor requirements for courses at the 100- or 200-level only. All other course work for the minor must be WSU course work.

Description of Courses
Entrepreneurship Courses
Entrp
375 Global E-Commerce 3 Prereq MIS 250. Same as MIS 375.

399 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

426 Entrepreneurial Finance 3 Prereq Acctg 231; Fin 325. Same as Fin 426.

485 Topics in New Venture Business Planning 3 Prereq Fin 325; Mktg 360; MgtOp 301; MIS 375. Business competition to understand new venture creation utilizing technology breakthroughs, entrepreneurial business functions, and business plan development.

486 Topics in New Venture Business Planning 3 Prereq Fin 325; Mktg 360; MgtOp 301; MIS 375. Business competition to understand new venture creation utilizing technology breakthroughs, entrepreneurial business functions, and business plan development.

489 Entrepreneurial Management 3 Prereq EconS 101, 102, Fin 325, MgtOp 301, MIS 250, Mktg 360. Same as MgtOp 489.

490 [M] Entrepreneurship 3 Prereq Mktg 360. Same as Mktg 490.


496 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours. Course covers new or time-sensitive topics in entrepreneurship.

498 Entrepreneurship Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government, or nonprofit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. Individualized study for students with special interests or needs. S, F grading.

501 Technology Entrepreneurship 3 Basic business concepts and processes applied to technology commercialization and venture creation.

588 Management of Innovation 3 Prereq graduate standing. Same as MgtOp 588.

Department of Finance, Insurance, and Real Estate

www.business.wsu.edu/finance
Todd 480
509-335-8727

SafeCo Distinguished Professor of Insurance, Professor, and Department Chair, G. Lai; Gary P. Brinson Chair of Investment Management, R. Sias; Omer L. Carey Chair, H. Turtle; Associate Dean for Faculty Affairs and Research, D. Whidbee; Associate Professors, Mutual of Enumclaw/Field Distinguished Professorship in Insurance, M. McNamara, J. Nofsinger; Assistant Professors, J. Becker-Blease, S. Liu, D. Paul, N. Walcott, J. Wang, Z. Xu.

Schedules of Studies
Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

FINANCE REQUIREMENTS (121 HOURS)
Preparation for careers in financial management, investment analysis, financial institutions management, financial services, real estate, or risk management and insurance.

First Year
First Term

EconS 101 [S] or EconS 102 [S] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math 201 3

Second Term

Biological Sciences [B] (GER)³ 3 or 4
EconS 101 [S] or EconS 102 [S] (GER) 3
GenEd 111 [A] (GER) 3
Intercultural Studies [J,G,K] (GER) 3
Math 202 [N] (GER) 3

Second Year
First Term

Acctg 230 3
Arts & Humanities [H,G] (GER) 3
B Law 210 3
Physical Science [P] (GER)³ 3 or 4
Elective 3

Second Term

Acctg 231 3
ComSt 102 [C], 235 [C], or H D 205 [C] (GER) 3
MgtOp 215 4
MIS 250 3
Soc or Psych [S,K] (GER) 3
Complete Writing Portfolio

Third Year
First Term

300-400-level Electives 3
Acctg 331 3
Fin 325 3
MgtOp 301 3
Pol S Elective 3

Second Term

EconS 301 3
Fin 421 3
Finance Elective² 3
MgtOp 340 3
Mktg 360 3

Fourth Year
First Term

Engl 402 [W] or 403 [W] (GER) 3
Fin 427 [M] or Fin 437 [M] 3
Finance Electives² 6
Elective 3

Second Term

Fin 425 [M] 3
Finance Elective² 3
MgtOp 491 or 492 3
Tier III Course (GER) 3
Elective 3

Footnotes
1 For a total of 7 hours of Biological and Physical Sciences.
2 Finance majors are required to take 12 hours from the following list: Acctg 331, 338, EconS 320, Fin 345, 350, 422, 426, 428, 438, 445, 447, 451, 452, 456, 481 [M], 496, 498 and 499. A minimum of 3 credit hours is required for Fin 498, 499, or a combination of credit hours from the two courses to count toward a student’s finance elective requirement. In addition, Fin 498 and/or 499 may count for no more than ONE of the finance elective requirements.

Minors
Finance
The minor in finance requires 18 hours and must include Acctg 231; MgtOp 215; Fin 325, 421, 427 [M]; and one from Fin 345, 350, 422, 425 [M], 426, 428, 438, 445, 447, 449, 451, 452, 456, 481 [M], 498, or 499. A total of 6 hours of transfer work may be counted toward the minor requirements for courses at the 100- or 200-level only. All other course work for the minor must be WSU course work.
Description of Courses

Finance Courses

Fin

223 Personal Finance 3 For non-business majors. Consumer credit, financial institutions, investments, mutual funds, insurance, social security, home ownership, taxes, estate planning. Credit not granted for both Fin 223 and 325.

325 Introduction to Financial Management 3 Prereq Acctg 231; EconS 101; MgtOp 215. Financial decision making, financial strategies, investment in current and fixed assets, financial instruments, and capital markets.

345 Real Estate 3 Prereq B Law 210, EconS 102 and Fin 325 or c//. Relationships between location and value; patterns of urban land use; legal, financial, and organizational framework of the real estate business.


350 Risk and Insurance 3 Prereq B Law 210; EconS 102. Concepts in risk management and insurance; personal risks and treatment methods; legal principles in risk and insurance; overview of the insurance industry, company operations, and insurance regulation.

421 Financial Institutions and Intermediation 3 Prereq Fin 325. Characteristics of financial markets and institutions; analysis of fixed-income securities; and introduction to financial risk management.

422 Financial Institutions Management 3 Prereq Fin 325. Problems facing financial institution managers and solution techniques; credit risk analysis and management; financial institutions structure and regulation.


426 Entrepreneurial Finance 3 Prereq Acctg 231; Fin 325. Raising capital for new enterprises; venture capital, IPOs, debt financing, leasing and valuing start-up ventures.

427 [M] Investment Analysis 3 Prereq Fin 325. Investment objectives, modern portfolio theory, valuation, equilibrium, market efficiency and principles of security analysis.

428 Portfolio Theory and Financial Engineering 3 Prereq Fin 427 or 437. The theory of portfolio management and the use of derivative securities in portfolio risk management.

429 Advanced Financial Modeling 3 Prereq Fin 325; Fin 421, 425, or 427, or c//. Corporate finance, portfolio, option pricing, risk management and fixed income modeling.

437 [M] Cougar Investment Fund I 3 Prereq Fin 325. Students manage a portion of the university's endowment; including security analysis, valuation, equilibrium, market efficiency, and modern portfolio theory.

438 Cougar Investment Fund II 3 Prereq Fin 325, Fin 437 (or Fin 427 with instructor permission). Students manage a portion of the university's endowment. Topics include portfolio risk management, return attribution, private equity, and hedge funds.

445 [M] Real Estate Valuation 3 Prereq Fin 325; Fin 345. Principles and practices of real property valuation; factors affecting real property values and income; appraisal and location theory.

447 Real Estate Finance and Investments 3 Prereq Fin 325. Instruments and institutions of real estate and financing: decision-making tools, mortgage financing analysis, mortgage securities and real estate portfolios.

451 Life Insurance and Financial Planning 3 Prereq Fin 325. Analysis of the personal risks of premature death, poor health, and retirement security; financial planning solutions to these risks, including life insurance, health insurance and annuities.

452 Property and Liability Insurance 3 Prereq Fin 350. Analysis and management of business property, liability and consequential loss exposures; issues in the property and liability insurance industry.

456 Risk Management 3 Prereq Fin 325. Identification and analysis of loss exposures of business and non-profit organizations; application of risk treatment measures including loss control and risk financing alternatives.

481 [M] International Finance 3 Prereq Fin 325. Same as I Bus 481.

496 Special Topics 3 May be repeated for credit; cumulative maximum 6 hours. Prereq permission of instructor. Topics may include finance, real estate or risk management/insurance.

498 Finance Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or non-profit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

500 Macroeconomic Theory I 3 Prereq EconS 302; one year of calculus. Same as EconS 500.

501 Microeconomic Theory I 3 Prereq EconS 301 or 305; one year calculus. Same as EconS 501.

502 Macroeconomic Theory II 3 Prereq EconS 500. Same as EconS 502.

503 Economic Theory IV 3 Prereq EconS 501. Same as EconS 503.

504 Economic Theory 3 Prereq EconS 502; EconS 503. Same as EconS 504.

510 Statistics for Economists 4 Prereq college calculus and matrix algebra. Same as EconS 510.

511 Econometrics I 3 Prereq EconS 510. Same as EconS 511.

512 Econometrics II 3 Prereq EconS 501; EconS 511. Same as EconS 512.

521 Interest Rates and Financial Markets 3 Prereq Fin 325 or 525. Real and nominal interest rates; bond pricing; term and risk structure of interest rates; investment and commercial banking; financial futures.

524 Financial Management 3 Prereq Acctg 550; EconS 101. Financial management of the firm; capital budgeting, working capital management, capital acquisition, and dividend policy.

525 Advanced Financial Management 3 Prereq enrollment in the MBA program. Theory of financial management; quantitative analysis of financial problems of the firm; empirical studies on financing modern corporations.

526 Problems in Financial Management 3 Prereq enrollment in the MBA program; Fin 325 or 525. Application of financial principles to problems in financial management; credit policy, capital budgeting, leasing and mergers, cash management.

527 Investment Analysis 3 Fin 325 or 525. A decision-making approach to the problems of asset management for personal and business portfolio.

528 Portfolio Theory and Financial Engineering 3 Prereq Fin 325, 427, or 527. The theory of portfolio management and the use of derivative securities in portfolio risk management.

529 Financial Management for High Tech Firms 3 Fin 325. Application of finance principles to firms in high-tech industries; financing, risk management, capital investment, and mergers/acquisitions.

542 Advanced Topics in Real Estate 3 Basic forces that motivate and affect investors in their use and possession of real estate.

581 International Finance 3 Prereq Fin 325 or 525. Same as I Bus 581.

590 Advanced Topics in Mathematical and Quantitative Methods V 1-6 Prereq EconS 500; EconS 501. Same as EconS 590.

591 Advanced Topics in Monetary and Public Economics V 1-6 Prereq EconS 500; EconS 501. Same as EconS 591.

592 Advanced Topics in International and Development Economics V 1-6 Prereq EconS 500; EconS 501. Same as EconS 592.

593 Advanced Topics in Health, Education, Labor, and Demographic Economics V 1-6 Prereq EconS 500; EconS 501. Same as EconS 593.

594 Advanced Topics in Markets and Industrial Organization V 1-6 Prereq EconS 500; EconS 501. Same as EconS 594.

595 Advanced Topics in Resource and Production Economics V 1-6 Prereq EconS 500; EconS 501. Same as EconS 595.
Second Year

First Term
- Acctg 230
- Arts & Humanities [H,G] (GER)
- GenEd 111 [A] (GER)
- MIS 171
- Physical Sciences [P] (GER) 3 or 4

Second Term
- Acctg 231
- B Law 210
- ComSt 102 [C], 235 [C], or H D 205 [C] (GER)
- MgtOp 215
- MIS 271
- Complete Writing Portfolio

Third Year

First Term
- Fin 325
- MgtOp 301
- MIS 322 [M]
- Mktg 360
- Elective

Second Term
- Engl 402 [W] or 403 [W] (GER)
- MgtOp 340
- MIS 325
- MIS 372 [M]
- MIS 374

Fourth Year

First Term
- MgtOp 491 or 492
- MIS 375 or 426
- MIS 420
- Soc or Psych [S] (GER)
- Elective

Second Term
- MIS 448
- Pol S Elective
- Tier III Course [T] (GER)
- Electives

Management Information Systems Courses

MIS

171 Web Technologies and Innovation
- 3 Effects of web-based technologies and modern development environments on organizations.

Management Information Systems

The minor in management information systems requires MIS 171, 250, 271, 322; and two of the following: MIS 325, 372, 374, 375, or 424. A total of 6 hours of transfer work may be counted toward the minor requirements for courses at the 100- or 200-level only. All other course work for the minor must be WSU course work.

Description of Courses

Management Information Systems Courses

MIS

171 Web Technologies and Innovation
- 3 Effects of web-based technologies and modern development environments on organizations.

Footnotes
1 For a total of 7 hours of Biological and Physical Sciences.

Second Year

First Term
- Acctg 230
- Arts & Humanities [H,G] (GER)
- GenEd 111 [A] (GER)
- MIS 171
- Physical Sciences [P] (GER) 3 or 4

Second Term
- Acctg 231
- B Law 210
- ComSt 102 [C], 235 [C], or H D 205 [C] (GER)
- MgtOp 215
- MIS 271
- Complete Writing Portfolio

Third Year

First Term
- Fin 325
- MgtOp 301
- MIS 322 [M]
- Mktg 360
- Elective

Second Term
- Engl 402 [W] or 403 [W] (GER)
- MgtOp 340
- MIS 325
- MIS 372 [M]
- MIS 374

Fourth Year

First Term
- MgtOp 491 or 492
- MIS 375 or 426
- MIS 420
- Soc or Psych [S] (GER)
- Elective

Second Term
- MIS 448
- Pol S Elective
- Tier III Course [T] (GER)
- Electives

Management Information Systems

The minor in management information systems requires MIS 171, 250, 271, 322; and two of the following: MIS 325, 372, 374, 375, or 424. A total of 6 hours of transfer work may be counted toward the minor requirements for courses at the 100- or 200-level only. All other course work for the minor must be WSU course work.

Description of Courses

Management Information Systems Courses

MIS

171 Web Technologies and Innovation
- 3 Effects of web-based technologies and modern development environments on organizations.

Footnotes
1 For a total of 7 hours of Biological and Physical Sciences.

Second Year

First Term
- Acctg 230
- Arts & Humanities [H,G] (GER)
- GenEd 111 [A] (GER)
- MIS 171
- Physical Sciences [P] (GER) 3 or 4

Second Term
- Acctg 231
- B Law 210
- ComSt 102 [C], 235 [C], or H D 205 [C] (GER)
- MgtOp 215
- MIS 271
- Complete Writing Portfolio

Third Year

First Term
- Fin 325
- MgtOp 301
- MIS 322 [M]
- Mktg 360
- Elective

Second Term
- Engl 402 [W] or 403 [W] (GER)
- MgtOp 340
- MIS 325
- MIS 372 [M]
- MIS 374

Fourth Year

First Term
- MgtOp 491 or 492
- MIS 375 or 426
- MIS 420
- Soc or Psych [S] (GER)
- Elective

Second Term
- MIS 448
- Pol S Elective
- Tier III Course [T] (GER)
- Electives

Management Information Systems Courses

MIS

171 Web Technologies and Innovation
- 3 Effects of web-based technologies and modern development environments on organizations.

Footnotes
1 For a total of 7 hours of Biological and Physical Sciences.
375 Global E-Commerce 3 Prereq MIS 250. Capabilities of the Internet to support and enable global electronic commerce; effective design and implementation; managerial issues.


420 Business Intelligence 3 Prereq MIS 250. Fundamentals of using information systems for business intelligence and decision support.

426 Emerging Technologies II 3 Prereq MIS 250. Special and advanced topics in MIS.

427 Emerging Technologies III 3 Prereq MIS 250. Special and advanced topics in MIS.

428 Emerging Technologies IV 3 Prereq MIS 250. Special and advanced topics in MIS.

448 Global IS Project Management 3 Prereq MIS 322. Principles and techniques related to managing information systems projects in global business environments.

475 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

498 Management Information Systems Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or nonprofit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

574 Telecommunications and Networking in Business 3 Prereq admission to MBA program. Business applications of data communications, infrastructure, protocols, topologies and management, the design of wired and wireless solutions, and related research issues.

575 Electronic Commerce and the Internet 3 Prereq admission to the MBA Program. Technologies underlying electronic commerce and the Internet; strategies and implementation plans for managing the implementation of electronic commerce systems.

580 Information Systems Management 3 Prereq enrollment in the MBA Program. Data processing organization; operations, application development, computer selection, management of computer personnel and systems.

582 Systems Analysis and Design 3 Prereq admission to MBA program. Research on and application of systems analysis, design, development and management of information systems; systems development life cycle.

595 MIS Research foundations 3 Prereq graduate standing. Seminal works in MIS, philosophy of science and theory development.

596 Doctoral Topics 3 May be repeated for credit; cumulative maximum 9 hours. Prereq graduate standing. Advanced topics in management information systems.

597 MIS Research Methods 3 Prereq MIS 596. Study and application of research methods used in MIS research.

598 MIS Research Topics 3 Major streams of research in MIS.

599 MIS Research Proposal Development 3 Prereq MIS 598. Seminar on the process of creating a MIS research proposal.

600 Special Projects or Independent Study Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

International Business Institute

www.business.wsu.edu/internationalbusiness

Todd Hall 570

509-335-2180


The International Business Institute (IBI) was organized to coordinate international activities in the College of Business. The IBI draws faculty, staff, and students together to achieve excellence in the internationalization of business education, research, and service. It administers the international business curriculum and advises all international business majors. The IBI aims at encouraging the business and economics faculty, staff, and students to be involved in interesting and exciting activities in the global business.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

INTERNATIONAL BUSINESS REQUIREMENTS (120 HOURS)

Preparation for careers with multinational corporations, governmental and intergovernmental agencies both domestic and international. Students must complete 9 credits of foreign study except for students studying at WSU who live outside the United States and who attended at least one year of secondary school in a foreign country. One year of foreign language is required except for non-native speakers of English from outside the US who may substitute satisfactory TOEFL scores. Bilingual Americans may substitute satisfactory ETS scores or certification by a WSU faculty member who is a native speaker of the target language.

First Year

First Term Hours
EconS 101 [S] or EconS 102 [S] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math 201 3
Tier I Science [Q] (GER) 3

Second Term Hours
Biological Sciences [B] (GER) 3 or 4
EconS 101 [S] or EconS 102 [S] (GER) 3
GenEd 111 [A] (GER) 3
Intercultural Studies [I,G,K] (GER) 3
Math 202 3

Second Year

First Term Hours
Acctg 230 3
Arts & Humanities [H,G] (GER) 3
MIS 250 3
Physical Sciences [P] (GER) 3 or 4
Pol S Elective 3

Second Term Hours
Acctg 231 3
B Law 210 3
ComS 102 [C], 235 [C], or H D 205 [C] (GER) 3
MgtOp 215 4
Soc or Psych [S,K] (GER) 3
Complete Writing Portfolio

Third Year

First Term Hours
300-400-level Electives 3
Fin 325 3
I Bus 380 [M] 3
MgtOp 301 3
Mktg 360 3

Second Term Hours
Foreign Language Elective 4
Group A Electives 6
MgtOp 340 3
Tier III Course [T] (GER) 3

Fourth Year

First Term Hours
Study Abroad 12

Second Term Hours
Elective 1
Engl 402 [W] or 403 [W] (GER) 3
MgtOp 491 or 492 3
Group A Elective 9

Footnotes
1 For a total of 7 hours of Biological and Physical Sciences.
2 Group A Electives are: I Bus 415, 416 [M], 435, 453 [M], 481 [M], 482 [M]. 492 (may not be used under both International Business and Business core), 496, 498, 499; one of Econ 416, 427, or I Bus 470. No more than 3 hours of 498 may be used.
3 Study Abroad coursework must be approved by the BSU director before it is taken.
Minors

International Business

The minor in international business requires I Bus 380 [M]; one of I Bus 433, 453 [M], 496, 498, or 499 (3 credits only of 498 or 499); two of the following pairs of courses: B Law 210, I Bus 415 or 416 [M]; I Bus 482, Mktg 360; EconS 102, I Bus 375, 417, 470, 472, or EconS 453; Fin 325, I Bus 481 [M]. Up to 9 hours of foreign study may be substituted for the above courses. Pre-approval is required. A total of 6 hours of transfer work may be counted toward the minor requirements for courses at the 100- or 200-level only. All other course work for the minor must be WSU course work.

Description of Courses

International Business Courses

I Bus

375 Aspects of Sustainable Development 3 Prereq junior standing. Same as EconS 326.

380 International Business 3 International political economy; business relationships between nations; corporations and economic institutions.

399 Foreign Study V 1-15 May be repeated for credit; cumulative maximum 15 hours. Prereq program approval required. Participation in approved programs of study at a foreign educational institution. S, F grading.


420 Accounting and Culture 3 Prereq Acctg 231. Same as Acctg 420.

435 International Tourism 3 Same as HBM 435.

453 [M] Comparative International Management 3 Same as MgtOp 453.

470 International Trade and Finance 3 Prereq EconS 102. Same as EconS 327.

472 Economic Development and Underdevelopment 3 Prereq EconS 102. Rec EconS 305. Same as EconS 427.

481 [M] International Finance 3 Prereq Fin 325. Financial problems of multinational businesses; international financial environment, long-term capital commitment to an international venture, financial techniques for firm operation, and international investment.

482 [M] International Marketing 3 Prereq I Bus 380; Mktg 360. Opportunities, characteristics, trends in foreign markets; alternative methods; strategies; organizational planning, control; problems of adapting American marketing concepts and methods.


496 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.

498 International Business Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or non-profit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

580 International Business Management 3 Decision making in the international environment; political, cultural, and economic risk management.

581 International Finance 3 Prereq Fin 325 or 525. Principles of international finance; financial management of multinational corporations; international investments.

582 International Marketing Management 3 Prereq Mktg 505. Principles of international marketing, marketing decision making in international environments, problems of adapting marketing programs to international markets.

596 Doctoral Topics 1 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Advanced topics in international business.

600 Special Projects or Independent Study Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

Department of Management and Operations

www.business.wsu.edu/managementoperations

Todd 342
509-335-7527

Professor and Department Chair, S. Ahn; Professors, B. Chen, J. Cullen, S. Fotopoulos, J. Goodstein, D. Lemak, T. Tipp, M.C. Wang; Associate Professors, T. Baker, K. Butterfield, K. Kuhn, C. Munson, S. Shin, L. Trevino; Assistant Professors, J. Arthur, K. Liu, V. Miskin (clinical), A. Sahaym, R. Portny.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

MANAGEMENT & OPERATIONS REQUIREMENTS (121 HOURS)

Students may emphasize preparation for one of three careers in this major: (1) careers as production executives in manufacturing and enterprises and for other administrative positions in business and government for which production training is useful and desirable; (2) careers for which an understanding of international business is desirable; and (3) careers in management which require an understanding of people in organizations as well as the production function.

First Year

First Term

EconS 101 [S] or EconS 102 [S] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math 201 3
Tier I Science [Q] (GER) 3

Second Term

Hours

Biological Sciences [B] (GER) 3
EconS 101 [S] or EconS 102 [S] (GER) 3
Intercultural Studies [I,G,K] (GER) 3
Math 202 [N] (GER) 3
MIS 250 3

Second Year

First Term

300-400 level Elective 3
Acctg 230 3
Arts & Humanities [H,G] (GER) 3
GenEd 111 [A] (GER) 3
Physical Sciences [P] (GER) 3

Second Term

Hours

Acctg 231 3
B Law 210 3
ComSt 102 [C], 235 [C], or H D 205 [C] (GER) 3
MgtOp 215 4
Soc of Psych [S] (GER) 3
Complete Writing Portfolio

Third Year

First Term

300-400 level Elective 3
Fin 325 3
MgtOp 301 3
Mktg 360 3
Elective 3

Second Term

300-400 level Elective 3
Engl 402 [W] or 403 [W] (GER) 3
MgtOp 340 3
MgtOp 401 [M] 3
Pol S Elective 3

Fourth Year

First Term

MgtOp 491 or 492 3
MgtOp Track Electives 3
Elective 3

Second Term

Hours

MgtOp Track Electives 3
Tier III [T] Course (GER) 3
Elective 3

Footnotes

1 For a total of 7 hours of Biological and Physical Sciences

2 For students selecting the Operations Management track, at least four of the MgtOp 300-400 courses electives must be from MgtOp 412, 418, 440, 452, 470. For those selecting the Organization Management track at least four of the MgtOp 300-400 courses must be from MgtOp 315, 430, 453, 455, 456, 483, 485, 487, 489.
Minors

Business Administration
Not more than three from Acctg 230, 231; B Law 210; EconS 101, 102; MgtOp 101, 215. Not less than three from Fin 325, 345, 350; I Bus 380; MgtOp 301, 340; MIS 372; Mktg 360. A total of 6 hours of transfer work may be counted toward the minor requirements for courses at the 100- or 200-level only. All other coursework for the minor must be WSU coursework.

Human Resource/Personnel
The minor in human resource/personnel requires MgtOp 215 or Psych 311; and MgtOp 301, 401[M], 450, 455, and 456[M]. A total of 6 hours of transfer work may be counted toward the minor requirements for courses at the 100- or 200-level only. All other coursework for the minor must be WSU course work.

Description of Courses

Management and Operations Courses

MgtOp
101 Introduction to Business 3 Introduction to the practice of business with explanations of business environments, strategy, organization, functional areas, terminology, processes, tasks and ethics. Credit not allowed for MgtOp 101 if credit already earned in MgtOp 301 and/or Mktg 360.

215 Statistics 4 (3-2) Prereq Math 201; MIS 250 or c//. Data presentation, probability, distributions, inference, and linear regression as applied to business and economics.

301 Principles of Management and Organization 3 Principles of management and administration aimed at improving effectiveness of all types of organizations. Credit not allowed for MgtOp 101 if credit already earned in MgtOp 301.


401 [M] Leadership Skills for Managers 3 Prereq MgtOp 301. Leadership, motivation, team building, group dynamics, interpersonal and group conflict, and job design


418 Quality Improvement for Management 3 Prereq MgtOp 215. Total quality management as used in industries; philosophy of Deming and others, control charts, process capability analysis, team tools.


450 Personnel and Human Resources Management 3 Prereq MgtOp 215; 301. Policy and practice in human resource utilization, selecting, training, motivating, evaluating, and compensating employees; labor relations; EEO legislation.

451 Business Statistical Analyses 3 Prereq admission to MBA program. Advanced preparation for graduate-level business analyses, applied finite math and statistics principles.


453 [M] Comparative International Management 3 Cross-cultural implications of management theories and approaches; the role of national culture in management theory and practice.

455 [M] Staffing 3 Prereq MgtOp 450 or c//. Selection issues; methods of forecasting, planning, recruitment, selection; analysis of psychometric properties of tests; techniques for assessing reliability and validity.

456 Compensation Administration 3 Prereq MgtOp 450 or c//. Theoretical, research, and applied issues related to the compensation of employees.

470 Business Modeling with Spreadsheets 3 Prereq Math 202 or 220; MIS 250. Spreadsheet modeling and solution of business problems with emphasis on operations management and logistics applications.


485 Negotiation Skills 3 Bargaining skills across a broad range of business settings; experiential work. Credit not granted for both MgtOp 485 and 585.

487 Business Ethics 3 Prereq MgtOp 301. The nature and sources of ethical conflicts and dilemmas individuals and organizations confront in the business context.

489 Entrepreneurial Management 3 Prereq EconS 101, 102, Fin 325, MgtOp 301, MIS 250, Mktg 360. Philosophy and nature of entrepreneurship for all business organizations; analytical, financial and interpersonal entrepreneurial skills.


492 Small Business Policy 3 Prereq Acctg 230, B Law 210, Fin 325, MgtOp 301, Mktg 360. Application of management theory and principles to small firms; applied consulting experience with operating businesses.

496 Seminar 3 May be repeated for credit.

498 Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or non-profit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Management of Organizations 3 Leading, organizing, decision making, planning, controlling, conflict management, and behavior in work organizations.

516 Time Series 3 Prereq MgtOp 515 or Stat 443. ARIMA models; identification, estimation, diagnostics, and forecasting; seasonal adjustments, outlier detection, intervention analysis and transfer function modeling.

517 Quality Improvement for Management 3 Philosophy and evolution of quality control, control charts, process capability analysis, applications.

518 Techniques of Sampling 3 Prereq MgtOp 591. Sample surveys for business use; theory and application with emphasis on appropriate sample types and the estimation of their parameters.

519 Applied Multivariate Analysis 3 Prereq MgtOp 591 or Stat 443. Principal components, factor analysis, discriminate function, cluster analysis, multivariate normal distribution, Hotelling’s T2 and MANOVA.

540 Deterministic Business Models 3 Prereq MgtOp 340. Decision analysis, linear optimization models, nonlinear models, network analysis including PERT, and dynamic programming as applied to business.


581 Operations Management 3 Prereq enrollment in the MBA program. Analytical approach to solving problems in production and operations management.

582 Personnel and Human Resource Management 3 Human resources and personnel administration; selection, training, compensation, performance appraisal, labor relations, health and safety, EEO legislation.

583 Organization Design 3 Development and design of contemporary systems of organization and management.

585 Negotiation Skills 3 Graduate counterpart of MgtOp 485; additional requirements. Credit not granted for both MgtOp 485 and 585.

586 Applied Multiple Time Series Analysis 3 Prereq MgtOp 516. Approaches to modeling and analysis of multiple time series.
Department of Marketing

www.business.wsu.edu/marketing
Todd 367
509-335-0924

Professor and Department Chair, D. Muehling; Professors, J. Cote, J. Johnson, E. Spangenberg, P. Tansuhaj, U. Unmesh; Associate Professors, J. Joireman, D. Sprott; Assistant Professors, V. Gregoire, B. John Mariadoss, E. Petrova, C. Plouffe; Professor Emeritus, D. Stem.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

MARKETING REQUIREMENTS

(121 HOURS)

Preparation for careers in marketing management, sales, retail management, marketing research, brand management, and promotion.

First Year
First Term
EconS 101 [S] or EconS 102 [S] (GER) 3
Engl 101 [W] (GER) 3
GenEd 111 [A] (GER) 3
Math 201 3
Tier I Science [Q] (GER) 3

Second Term
Biological Sciences [B] (GER) 3 or 4
EconS 101 [S] or EconS 102 [S] (GER) 3
GenEd 111 [A] (GER) 3
Intercultural Studies [J,G,K] (GER) 3
Math 202 3

Second Year
First Term
Acctg 230 3
Arts & Humanities [H,G] (GER) 3
MIS 250 3
Physical Sciences [P] (GER) 3
Poly S Elective 3

Second Term
Acctg 231 3
B Law 210 3
ComSt 102 [C], 235 [C], or H D 205 [C] (GER) 3
MgtOp 215 3
Soc or Psych [S,K] (GER) 3
Complete Writing Portfolio

Third Year
First Term
Fin 325 3
MgtOp 301 3
MgtOp 340 3
Mktg 360 3
Elective 3

Second Term
300-400-level Electives 3
Group A Elective [M] 3
Group B Elective 3
Mktg 407 or 417 3
Engl 402 [W] or 403 [W](GER) 3

Fourth Year
First Term
Group A Elective 3
Group B Elective 3
Mktg 368 3
Elective 3

Second Term
Group A Elective 3
MktgOp 491 or 492 3
Mktg 495 [M] 3
Tier III Course [T] (GER) 3
Elective 3

Footnotes
1 For a total of 7 hours of Biological and Physical Sciences.
2 Group A electives are: Four from Mktg 379, 450, 457 [M], 461 [M], 468, 470, 477, 478 [M], 480, 482 [M], 487, 490 [M], 496, 498. No more than 3 hours of 498 may be used.
3 Group B electives are: Two from Acctg 338; EconS 301, 321, 1 Bus 380 [M]; MktgOp 485; MIS 375; Mktg 499; additional courses with advisor approval.

Minors

Marketing

Mktg 360; 407 or 417; four of Mktg 368, 379, 450, 457 [M], 461 [M], 468, 470, 477, 478 [M], 480, 482 [M], 487, 490 [M], 496 (3 credits), 498. A total of 6 hours of transfer work may be counted toward the minor requirements for courses at the 100- or 200-level only. All other course work for the minor must be taken in residence at WSU.

Description of Courses

Marketing Courses

Mktg 360 Marketing 3 Functions, methods, and middlemen used in marketing the principal types of goods; price policies, cost of marketing; government regulation. Credit not allowed for MgtOp 101 if credit already earned in Mktg 360.

368 Marketing Research 3 Prereq: MgtOp S 215; Mktg 360. Survey and experimental methods as they relate to marketing research.

379 Professional Sales 3 Theory and principles of professional sales with special attention to the business-to-business market.

399 Special Topics: Study Abroad 3 1-15 May be repeated for credit. S, F grading.

407 Consumer Behavior 3 Prereq: Mktg 360. The investigation of social-psychological phenomena affecting consumer decision processes; learning theory and communication.
417 Consumer Behavior and E-Commerce
3 Prereq Mktg 360 or equivalent. Theories of social science explaining the mental, emotional, and physical activities underlying consumer behavior in traditional physical and digital environments.

450 Internet Marketing 3 Prereq Mktg 360. Case and project-based course exploring marketing's role in the Internet and electronic commerce.

457 [M] Advanced Consumer Behavior 3 Prereq Mktg 407 or 417. Advanced theories of the cognitive, affective and behavior dimensions underlying the decisions and actions of consumers.


468 Public Policy and Marketing 3 Prereq Mktg 360. Productivity and efficiency in marketing; government regulation of marketing structure and of marketing policies and practices; consumer protection and welfare.

470 Retail Management 3 Prereq Mktg 360. Retailing system; organization, merchandising models, pricing, promotion, location, and control procedures; management decision processes.

477 Promotion Management 3 Prereq Mktg 360. Text and case approach to integrating promotion into the marketing plan; methods, organization, communications, media selection, and campaigns.

478 [M] Sales Management 3 Prereq Mktg 360. The role of selling in the marketing mix; problems in planning, organizing, evaluating and controlling the sales force.

480 Business to Business Marketing 3 Prereq Mktg 360. Case and project-based course exploring business-to-business marketing in traditional and electronic environments.

482 [M] International Marketing 3 Prereq 1 Bus 380; Mktg 360. Same as 1 Bus 482.

487 Independent Research 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Mktg 368, 457. Independent research project with faculty member including problem statement, literature review, hypotheses, data collection, and reporting of results.


495 [M] Marketing Management 3 Prereq Mktg 360; 6 hours Mktg. Analysis of marketing policy; approaches to solutions of marketing problems.

496 Special Topics V 1-3 Prereq Mktg 360. May be repeated for credit; cumulative maximum 6 hours.

498 Marketing Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Prereq Mktg 360. Cooperative educational internship with a business, government or nonprofit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. Prereq Mktg 360. S, F grading.

505 Survey of Marketing 3 Prereq enrollment in the MBA program. Marketing management; relevance of marketing to company profitability and consumer satisfaction; decision regarding price, product, promotion, and distribution.

506 Marketing Management and Administrative Policy 3 Prereq enrollment in the MBA program. Marketing management and administrative policies as they relate to concepts, strategies, and decision making.

560 Research Methodology 3 Prereq Mktg Op 215 or 591. Types of data needed and available, collection and analysis of data as they relate to decisional research.

561 Technology and New Product Marketing 3 Prereq Mktg 360 or 505. Introduction of new products that are based on new technology: exploration of actual products in the market.

565 Seminar in Marketing 3 May be repeated for credit; cumulative maximum 9 hours. Marketing structure and behavior from economic and behavioral perspectives; social evaluation and behavioral implications of marketing strategy.

567 Consumer Behavior Theory 3 Prereq Mktg 505. Theory in consumer and buyer behavior; conceptual and empirical research role of purchase and consumption behavior on society and marketing.

590 Seminar in Consumer Behavior 3 Advanced, doctoral-level topics in consumer behavior.

591 Seminar in Marketing Management 3 Advanced, doctoral-level topics in marketing management.

592 Seminar in Marketing Theory 3 Advanced, doctoral-level topics in marketing theory.

593 Seminar in Research Design 3 Advanced, doctoral-level topics in research design.

594 Seminar in Research Techniques 3 Advanced, doctoral-level topics in research techniques.

596 Doctoral Topics 3 Advanced topics in marketing.

600 Special Projects or Independent Study Variable credit S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

School of Chemical Engineering and Bioengineering

www.che.wsu.edu
Dana 118
509-335-4332


The goal of the School of Chemical Engineering and Bioengineering at Washington State University is to educate students to analyze problems and design solutions from an engineering viewpoint, communicate the solutions effectively, and remain productive throughout their lives. When students graduate they should be able to use their education to be confident, independent engineers capable of effective problem solving.

To achieve this goal we seek to: 1) prepare BS level students for careers or further education by means of a broad educational program based in chemical engineering fundamentals, 2) prepare students to be capable of continuous learning via a variety of approaches including a balance of fundamental versus practical research, 3) facilitate interactions with regional and national industries, and 4) maintain an environment which promotes close interaction between students and faculty in teaching, mentoring and research.

Meeting these objectives will be monitored by an annual assessment of selected activities within the school. When developing and verifying this assessment process the following outcomes, expected of our graduating students, will be considered.

We expect that our graduating students will be able to: 1) use their engineering skills within the context of a strong, fundamental general education, 2) use the fundamentals of the life and physical sciences, 3) apply a fundamental knowledge and practical understanding of chemical engineering principles, 4) continue learning whether in a traditional educational setting or via some other route, 5) incorporate both technical and non-technical issues in problem solving, and 6) communicate effectively.

The school offers courses of study leading to the degrees of Bachelor of Science in Bioengineering, Bachelor of Science in Chemical Engineering, Master of Science in Chemical Engineering, and Doctor of Philosophy.

Chemical Engineering

The curriculum in chemical engineering provides thorough knowledge of basic science and engineering. This includes material and energy balances, chemical and physical equilibria, rate processes, and economic balances. With such training, graduates may participate in the design and operating of chemically based products or they may engage in research leading to new or improved chemical processes, products, and uses. Graduates also find rewarding work in plant operation, plant management, university teaching, sales-service, and
other functions requiring chemical engineering training. Many students also use their educations in chemical engineering as preparation for other professional degrees such as medicine or law. The curriculum in chemical engineering is accredited by ABET.

The total number of majors in the school is restricted at the junior level.

**Certification**

Specific requirements for certification in chemical engineering can be obtained from the school although eligibility usually occurs at the middle of the sophomore year. Criteria for certification include overall GPA, grades earned in mathematics and physical science courses, and performance in the Ch E 201 course. A certified student earning a GPA of less than 2.0 for any two semesters is subject to decertification.

**Bioengineering**

Bioengineering is an engineering discipline that integrates engineering and life sciences to address issues important to human and animal well-being and to society at large. As such, the educational objective of the BS Bioengineering degree is to prepare graduates for productive employment, advanced study, or professional programs where they apply principles and methods of both engineering and life sciences to solve problems affecting human and animal health and well-being. Graduates may apply their expertise in human and animal medicine, biotechnology, or related biology-based engineering fields.

Bioengineering is one of the fastest growing disciplines in the nation. Graduates are prepared to apply engineering methods to fields of biology and medicine and to utilize biological understanding in engineering problem solving and design. With these integrated science and engineering skills, bioengineering graduates are able to make valuable contributions to human and animal health care and environments, bio-based product development, and biotechnology. At Washington State University, bioengineering cooperates with and finds applications in numerous disciplines of engineering, veterinary medicine, medical sciences, and the Spokane medical community. The bioengineering curriculum easily accommodates pre-medical, pre-dental and pre-veterinary requirements for those students wishing to apply to professional schools in health care fields.

Bioengineering graduates are to demonstrate educational outcomes (abilities, skills, and attributes) listed below. 1) Application of Math/Science/Engineering: Students demonstrate an ability to use foundational knowledge in mathematics, physics, chemistry, biology, physiology, and engineering sciences. 2) Critical Thinking: Students demonstrate ability to analyze and evaluate scientific and engineering arguments or claims and to critically relate such claims to global, economic, environmental, professional, and societal issues. 3) Independent Learning: Students demonstrate awareness of a need for ongoing professional growth and ability to learn independently to address challenges they encounter. 4) Systems Solutions: Students demonstrate ability to use analogous thinking, synthesis and analysis, integrative systems approaches, and associated tools to solve engineering problems. 5) Teamwork: Students demonstrate an ability to work in teams comprised of engineers and others to produce joint work products. 6) Bioengineering Design: Students demonstrate ability to design engineering solutions to meet needs with biological considerations and constraints of producers, users, investors and society. 7) Experimentation: Students demonstrate ability to design and conduct experiments, make measurements, analyze data, and interpret results and interactions between living systems and nonliving materials and systems. 8) Career Awareness: Students demonstrate awareness of career opportunities and contemporary issues that influence their choices of entry-level jobs and advanced training. 9) Professional Ethics: Students demonstrate understanding of professional and ethical responsibility and reasoning for professional decision-making. 10) Communication: Students demonstrate ability to communicate effectively in written and oral forms to interdisciplinary audiences.

**Certification**

Students may apply for certification into the BS Bioengineering degree program after completion of the following courses: Math 171, 172; Chem 105, 106; Phys 201; ChE 201; BE 210 or 320; Biol 107. Students must be certified in bioengineering before being allowed to enroll in other 300-level or 400-level required BE courses.

**Transfer Students**

Students who are planning to transfer to Chemical Engineering or Bioengineering at Washington State University from other institutions should coordinate their programs with the school to establish a schedule of studies leading to the bachelor's degree. This is desirable because of sophomore professional requirements and course sequences. A strong preparation in chemistry, mathematics, and physics is necessary prior to transfer to minimize the time required at Washington State University to complete bachelor's degree requirements. Inquiries concerning specific questions are welcomed. Since there is a restriction on the total number of majors in the school, transfer students should make application for admission as soon as possible.

**Preparation for Graduate Study**

As preparation for work toward an advanced degree, a student should have completed substantially the equivalent of the above schedule of studies. A Bachelor of Science degree in Chemical Engineering from an institution accredited by ABET normally will satisfy this requirement. Special programs are also available for students with bachelor's degrees in chemistry or other areas of science who wish to obtain the Master of Science degree in Chemical Engineering.

**Schedules of Studies**

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

**BIOENGINEERING, GENERAL OPTION**

**130 HOURS**

Students who plan to pursue pre-med studies should consult their advisor for further information about appropriate courses.

Students may apply for certification into the BS Bioengineering degree program after completion of the following courses: Math 171, 172; Chem 105, 106; Phys 201; ChE 201; BE 210 or 320; Biol 106 or 107. Students must be certified in bioengineering before being allowed to enroll in other 300-level or 400-level required BE courses.

**First Year**

**First Term**

<table>
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<tbody>
<tr>
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<tr>
<td>Engr 120</td>
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<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 171 [N] (GER)</td>
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**Second Term**

<table>
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<tr>
<td>B E 140</td>
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<td>Biol 107 [B] (GER)</td>
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<td>Chem 106 [P] (GER)</td>
<td>4</td>
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<tr>
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<tr>
<td>Math 172</td>
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**Second Year**

**First Term**

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<td>B E 205</td>
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<td>Ch E 201</td>
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<tr>
<td>Chem 345</td>
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<td>Math 220</td>
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<td>Math 273</td>
<td>2</td>
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**Second Term**

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<td>B E 210</td>
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<td>C E 211</td>
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<td>Math 315</td>
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<td>Math 370 or 423</td>
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<td>Phys 202 [P] (GER)</td>
<td>4</td>
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<tr>
<td>Complete Writing Portfolio</td>
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**Third Year**

**First Term**

<table>
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<td>E E 261</td>
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**Second Term**

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<td>B E 340</td>
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<td>Bioengineering elective²</td>
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<td>Econ 101 [S] or 102 [S] (GER)</td>
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<td>Intercultural Studies [J,G,K] (GER)</td>
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**Fourth Year**

**First Term**

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<td>B E 410</td>
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**Second Term**

<table>
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<tr>
<td>Bioengineering elective²</td>
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<td>Tier III Course [T], Humanities or Social Sciences (GER)¹</td>
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### BIOENGINEERING, PRE-MED OPTION

(131 HOURS)

#### First Year

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<th>Course Code</th>
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<td>Engl 101 [W]</td>
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<tr>
<td>GenEd 110 [A]</td>
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<tr>
<td>Math 171 [N]</td>
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#### Second Year

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<th>Course Code</th>
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<td>Biol 106 [B]</td>
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<td>Math 220</td>
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<td>Math 227</td>
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<tr>
<td>Phys 201 [P]</td>
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#### Third Year

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
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<td>Ch E 310</td>
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<tr>
<td>Chem 345</td>
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<td>E E 261</td>
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<tr>
<td>MBioS 301</td>
<td></td>
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<td>MBioS 301</td>
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#### Fourth Year

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>MBioS 301, 303, or 305</td>
<td></td>
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<td>MSE 302</td>
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#### Third Year

<table>
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<tr>
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<th>Hours</th>
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<tbody>
<tr>
<td>Ch E 301</td>
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<tr>
<td>Ch E 310</td>
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</tr>
<tr>
<td>Chem 398</td>
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<td>Chem 331</td>
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#### Fourth Year

<table>
<thead>
<tr>
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<tr>
<td>Ch E 432</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Ch E 441</td>
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<td>3</td>
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<tr>
<td>Ch E 450</td>
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<td>Ch E 475</td>
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<td>Ch E 498</td>
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</table>

#### CHEMICAL ENGINEERING - GENERAL

(131 HOURS)

At least 66 of the total hours required for this degree must be in 300-400-level courses.

Specific requirements for certification in chemical engineering can be obtained from the school although eligibility usually occurs at the middle of the sophomore year. Criteria for certification include overall GPA, grades earned in mathematics and physical science courses, and performance in the Ch E 201 course. A certified student earning a GPA of less than 2.0 for any two semesters is subject to decertification.

#### First Year

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>Chem 105 [P]</td>
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<tr>
<td>Engl 101 [W]</td>
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<tr>
<td>GenEd 110 [A]</td>
<td>(GER)</td>
<td>3</td>
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<tr>
<td>Math 171 [N]</td>
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#### Second Year

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Biol 106 [B]</td>
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</tr>
<tr>
<td>Chem 106 [P]</td>
<td>(GER)</td>
<td>4</td>
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<tr>
<td>GenEd 111 [A]</td>
<td>(GER)</td>
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<tr>
<td>Math 172</td>
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#### Fourth Year

<table>
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<td>Ch E 441</td>
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<td>Ch E 451</td>
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<tr>
<td>Ch E 498</td>
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</tbody>
</table>

#### CHEMICAL ENGINEERING - PRE-MED

(135 HOURS)

Specific requirements for certification in chemical engineering can be obtained from the school although eligibility usually occurs at the middle of the sophomore year. Criteria for certification include overall GPA, grades earned in mathematics and physical science courses, and performance in the Ch E 201 course. A certified student earning a GPA of less than 2.0 for any two semesters is subject to decertification.

#### First Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Ch E 310</td>
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<tr>
<td>Chem 398</td>
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<td>Chem 331</td>
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<td>3</td>
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<tr>
<td>MBioS 301</td>
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<tr>
<td>MBioS 302</td>
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#### Second Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>Ch E 432</td>
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<td>Ch E 441</td>
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<td>3</td>
</tr>
<tr>
<td>Ch E 498</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Footnotes:

1. A total of 18 credits of arts and humanities, social sciences, intercultural studies, and world civilization are required. For engineering majors, the Tier III requirement must be satisfied with a course in the arts and humanities or social sciences. Tier II courses should be selected so that any prerequisites for the Tier III course are satisfied.
2. Must be approved by advisor prior to enrollment in the class.

Note: Students interested in the professions of medicine, veterinary medicine, or dentistry have only two Bioengineering electives free to select. Four of them are already selected (Biol 106, MBioS 301, Chem 346, and Chem 348) to give the necessary foundation for the MCAT examination required for medical school application. Note also that the two remaining electives must be 400-level AND Engineering Topics totaling six credits.
### Description of Courses

#### Bioengineering Courses

<table>
<thead>
<tr>
<th>140 Introduction to Bioengineering</th>
<th>1 Seminar on current topics and issues in bioengineering; career options in bioengineering. S, F grading.</th>
</tr>
</thead>
<tbody>
<tr>
<td>205 Bioengineering Professional Preparation and Ethics</td>
<td>1 Professional preparation for careers in bioengineering: ethical, social, and professional issues in bioengineering. S, F grading.</td>
</tr>
<tr>
<td>210 Bioengineering Analysis</td>
<td>2 (1-3) Prereq Ch E 201; Math 172, 220 or permission of instructor. Analytical problem solving, modeling and computer methods for bioengineering applications.</td>
</tr>
<tr>
<td>320 Mechanics of Biomaterials</td>
<td>4 (3-3) Prereq C E 211; Math 423 or c/. Composition of biological materials, mechanical and thermal properties, chemical and biological changes.</td>
</tr>
<tr>
<td>330 Bioinstrumentation</td>
<td>3 (2-3) Prereq E E 261; certified B E major. Principles of instrumentation applicable to bioengineering systems; experimental design for measurement systems.</td>
</tr>
<tr>
<td>340 Unified Systems Bioengineering I</td>
<td>4 (3-3) B E 210 or c/; E E 261 or c/; Math 315; or instructor’s permission. Foundation for dynamic modeling and design of physiological systems; part one of two-semester course.</td>
</tr>
<tr>
<td>350 Introduction to Cellular Bioengineering</td>
<td>4 (3-3) Prereq Chem 345; Math 315; Phys 202; MBioS 303 or c/. Integrating cellular biology and engineering science by applying quantitative engineering principles for development of cellular-based materials, diagnostic devices and sensor designs.</td>
</tr>
<tr>
<td>410 Bioengineering Capstone Project I</td>
<td>3 (2-3) Prereq Engl 402 or c/; B E 340 or permission of instructor. Part I of capstone engineering design project; customer needs, design requirements, conceptual design, business assessment, project proposal, and presentation.</td>
</tr>
<tr>
<td>411 Bioengineering Capstone Project II</td>
<td>3 (2-3) Prereq senior status; B E 410 or permission of instructor. Detailed design and business case for a biological engineering-related process, machine, structure, or system.</td>
</tr>
<tr>
<td>420 Multidisciplinary Design Project</td>
<td>3 (2-2) Prereq Junior status; non-engineer; permission of instructor; completion of one Tier I and three Tier II courses. Team development of technical design product with business and social considerations; coupled with B E 410/411; written and oral reporting.</td>
</tr>
<tr>
<td>425 Biomechanics</td>
<td>3 Prereq B E 320 or (CE 215 and MSE 301); Math 315. Methods for analysis of rigid body and deformable mechanics; application to biological tissue, especially bone, cartilage, ligaments, tendon and muscle. Credit not granted for both B E 425 and 525.</td>
</tr>
<tr>
<td>440 Unified Systems Bioengineering II</td>
<td>4 (3-3) Prereq B E 340. Continuation of B E 340; emphasis on feedback control system analysis and design, with examples from physiological systems.</td>
</tr>
<tr>
<td>445 Cardiovascular Systems Engineering</td>
<td>3 Prereq B E 340. Mathematical modeling used to integrate components of the cardiovascular system into a functioning simulation that allows critical systems-level study; individual and group projects are required.</td>
</tr>
<tr>
<td>481 Advanced Topics in Bioengineering</td>
<td>V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq Junior status; permission of instructor. Advanced topics in bioengineering.</td>
</tr>
<tr>
<td>495 Internship in Bioengineering</td>
<td>V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq B E 205; prior approval of advisor and supervisor. Work experience related to academic learning. S, F grading.</td>
</tr>
<tr>
<td>499 Special Problems in Bioengineering</td>
<td>V 1-4 May be repeated for credit; cumulative maximum 6 hours. Prereq sophomore status; prior approval of advisor and instructor. Special problems or guided independent study in bioengineering. S, F grading.</td>
</tr>
<tr>
<td>525 Biomechanics</td>
<td>3 Prereq B E 320 or (CE 215 and MSE 301); Math 315. Graduate-level counterpart of B E 425; additional requirements. Credit not granted for both B E 425 and 525.</td>
</tr>
<tr>
<td>541 Systems Bioengineering</td>
<td>3 Physiological systems emphasizing the cardiovascular, pulmonary, renal, endocrine, musculoskeletal, nervous and sensory systems.</td>
</tr>
<tr>
<td>550 Cellular Bioengineering</td>
<td>3 Prereq B E 350. Cellular biology integrated with engineering science; cellular phenomena from an engineering perspective; quantitative engineering principles for cellular-based materials, diagnostic devise and sensor designs.</td>
</tr>
</tbody>
</table>

#### Chemical Engineering Courses

| 110 Introduction to Chemical Engineering | 2 Prereq Chem 105 and Math 171 or c/. Introduction to chemical engineering, development of problem solving skills. |
| 201 Chemical Process Principles and Calculations | 3 Prereq Chem 106; Math 172 or c/. Fundamental concepts of chemical engineering; problem-solving techniques and applications in stoichiometry, material and energy balances, and phase equilibria. |
| 211 Process Simulation | 3 Prereq Chem 106; Math 172; Math 315 or c/. Computer solutions to problems in chemical engineering processing. |
| 277 Special Topics: Study Abroad V | 1-15 May be repeated for credit. S, F grading. |
| 298 Technical Seminar | 1 May be repeated for credit; cumulative maximum 2 hours. S, F grading. |
| 301 Chemical Engineering Thermodynamics | 3 Prereq Ch E 201; Chem 331 or c/; major in Ch E. Basic concepts and laws; property relationships; compression and liquefaction; phase equilibria; reaction equilibria; applications in stagewise processing. |
| 310 Introduction to Transport Processes | 3 Prereq Ch E 201; Math 315 or c/; major in Ch E. Fundamentals of the phenomena governing the transport of momentum, energy, and mass. |
321 Kinetics and Reactor Design 3 Prereq Ch E 301; Chem 331; Math 315; major in Ch E. Chemical reaction kinetics applied to the design of reactors, non-ideal flow, mixing, catalysis.

332 Fluid Mechanics and Heat Transfer 2 Prereq Ch E 201, 310, Ch E major. Design calculations, operations, and evaluation of equipment used in fluid flow, heat transfer, and evaporation.

334 Chemical Engineering Separations 2 Prereq Ch E 301, 310; 332 or c/. Design and evaluation of equipment used in continuous contacting.

398 Technical Seminar 1 May be repeated for credit; cumulative maximum 2 hours. S, F grading.

418 Materials Processing 3 Prereq Ch E 334; Chem 105, 106; Ch E major. Processing of semiconductor materials.

432 [M] Chemical Engineering Lab I 3 (1-6) Prereq Ch E 310, 321, 332, 334. Statistical design and analysis of experiments; safety; experiments in heat and mass transfer; separations, other unit operations, kinetics, control; technical reports and presentations.

433 [M] Chemical Engineering Lab II 2 (0-6) Prereq Ch E 432. Laboratory experiments in heat and mass transfer; separations, other unit operations, kinetics, control; design calculations; technical reports and presentations.

435 Modern Separation Processes 3 Prereq Ch E 301, 310, 332, 334; Ch E major. Design and operation of separation processes important to emerging technologies; bioseparations, supercritical extraction.

441 Process Control 3 Prereq Ch E 211 or Ch E 310. Measuring instruments, automatic control, process and instrument characteristics and theory applied to industrial control problems.

450 Chemical Process Analysis and Design I 3 Prereq Ch E 301, 321, 334. Chemical engineering design; computer tools; safety and environmental constraints; cost and equipment optimization.


461 Introduction to Nuclear Engineering 3 Prereq junior in engineering or physical science. Same as M E 461.

465 Integrated Envirochemical Engineering 3 Prereq Ch E 334. Application of chemical engineering principles in assessment and remediation of industrial problems in air pollution, water pollution, and solid and hazardous waste.

475 Introduction to Biochemical Engineering 3 Prereq Ch E 310, 332. Application of chemical engineering principles to the processing of biological and biochemical materials.

476 Biomedical Engineering Principles 3 Prereq Ch E 301, 310. The application of chemical engineering principles to biomedical processes.

477 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

481 Special Topics in Chemical Engineering V 1-3 Interfacial phenomena, high temperature material processing, integrated circuit manufacturing, in situ destruction of hazardous waste.

485 Interfacial Phenomena 3 Prereq Ch E 301, 310. Chemical and physical nature of the interface including the molecular basis for interfacial forces and resulting macroscopic phenomena. Credit not granted for both Ch E 485 and 585.

487 Food Process Engineering Design 3 Prereq Ch E 332. Same as BSYE 482.

495 Chemical Engineering Internship 2 May be repeated for credit; cumulative maximum 4 hours. Students work full time in engineering assignments in approved industries with prior approval of advisor and industrial supervisor. S, F grading.

496 Cooperative Education Internship V 2-4 May be repeated for credit; cumulative maximum 4 hours. Off-campus internship with business, industry, or government unit. S, F grading.

498 Technical Seminar 1 May be repeated for credit; cumulative maximum 2 hours. For juniors and seniors in Ch E, S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

510 Transport Processes 3 Transport of mass, energy, and momentum; unsteady and steady states as applied to chemical processing; macroscopic and microscopic analyses. Cooperative course taught jointly by WSU and UI (ChE 515).

515 Convective Heat Transfer 3 Same as M E 515.

527 Macroscopic Thermodynamics 3 Same as M E 527.

529 Chemical Engineering Kinetics 3 Interpretation of kinetic data and design of nonideal chemical reactors; fundamentals of heterogeneous catalysis, catalyst preparation, characterization, and theory. Cooperative course taught jointly by WSU and UI (ChE 529).

541 Chemical Engineering Analysis 2 Mathematical analysis of chemical engineering operations and processes; mathematical modeling and computer application.

546 Mass Transfer Operations 3 Diffusional and equilibrium operations. Cooperative course taught jointly by WSU and UI (ChE 546).

560 Biochemical Engineering 3 Chemical engineering applied to biological systems; fermentation processes, biochemical reactor design, downstream processing, transport phenomena in biological systems, biochemical technology. Cooperative course taught jointly by WSU and UI (ChE 560).

565 Fundamentals of Multiphase Environmental Processes 3 Prereq graduate standing. Principles of material and energy balances, reaction kinetics, phase equilibria, chemistry and microbiology governing environmental transport phenomena.

567 Current Topics in Multiphase Environmental Systems 3 Prereq graduate standing. Interdisciplinary course focused on reactions and processes at air, water, and soil interfaces in the environment.

574 Protein Biotechnology 3 Same as MBioS 574.

581 Advanced Topics in Chemical Engineering V 1-3 May be repeated for credit; cumulative maximum 9 hours. Filtration, reaction engineering, two-phase flow, non-Newtonian fluids, interfacial phenomena, fluidization, novel separations, biomedical engineering.

585 Interfacial Phenomena 3 Prereq Ch E 301, 310. Graduate-level counterpart of Ch E 485; additional requirements. Credits not granted for both Ch E 485 and 585.

596 Research Methods and Presentation I 2 Prereq graduate standing. Establish sound practices for graduate research and presentation of results; techniques used for performing through literature searching and establishing and testing research hypotheses.

597 Research Methods and Presentation II 2 Prereq graduate standing. Establishing sound practices for presentation of research programs and research results.

598 Research Seminar 1 May be repeated for credit. Seminar presentations on current topics in chemical engineering research. S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

Department of Chemistry

www.chemistry.wsu.edu
Fulmer 305
509-335-1516

Professor and Department Chair, K. Hipsps; Professors, C. Berkman, J. Bruce, S. Clark, P. Garner, H. Hill, J. Hurst, J. Jones, A. Li, D. Matteson, U. Mazur, J. McHale, K. Nash, K. Peterson, R. Ronald, J. Satterlee, J. Schenk, S. Wherland; Associate Professors, J. Brozik,
Chemistry is the fundamental science of matter, the nature of substances, and the changes occurring in them. Chemical reactions are the basis of all life on earth. Everything we are or do depends in one way or another on chemistry. A major in chemistry prepares you for a variety of careers in industry, education, and public service, or for graduate study and research in chemistry and many related fields.

The department has excellent facilities and special equipment for study and research at both the undergraduate and graduate level. There are active research programs in both traditional and emerging areas of chemistry. Students in chemistry at WSU are encouraged to take advantage of its excellent facilities and faculty by beginning research projects as early as possible. Research expands experience beyond the classroom into the realm of new knowledge.

We expect that our graduating students will: 1) demonstrate their knowledge of the principals of the major subfields of chemistry, organic, analytical, physical, inorganic, and biochemistry, and be able to use it in the solution of the daily needs and future problems of the workplace and society; 2) demonstrate independence and creativity through individual work in the research laboratory; 3) be able to access, read, and critically evaluate the chemical and general scientific literature; 4) apply their skills and knowledge of chemistry within the context of a strong, fundamental general education; and 5) communicate effectively both orally and in writing.

Typical areas for research include:
- Analytical chemistry focuses on the identification and measurement of chemical species wherever they are found. It involves the development and application of new methods of detection and measurement, the application of analytical methods in biological environments, and the use of nuclear and radio-chemical techniques in a wide range of applications.
- Environmental chemistry applies knowledge of chemical interactions to the study of the environment, is fundamental to any efforts to protect and improve environmental integrity. It involves the analysis of any materials found in the environment, whether as the result of human activity or as the result of natural processes. It focuses on the identification and measurement of chemical materials in rocks and minerals, in natural waters, and in the atmosphere.
- Inorganic chemistry has as its center the study of the vast majority of the known elements and especially the transition metals; it includes investigations into the mechanisms of electron transfer processes. It is closely related to bioinorganic chemistry which includes the study of metal containing proteins, radiopharmaceuticals, and investigations of the role of reactive small molecule oxidizing agents in biological processes.
- Materials chemistry brings the knowledge and understanding of chemistry to the study of the structure and properties of materials. It involves the study of chemical reactions occurring at surfaces and 5) communicate effectively both orally and in writing.
- Organic chemistry deals with the many compounds of carbon and how these compounds interact in biological systems. It includes the study of medicinal, biogeneric, mechanistic, and synthetic chemistry and how these areas may be used in areas such elucidation of metabolic pathways, drug development in the treatment of diseases, and environmentally benign synthesis of important chemicals.
- Physical chemistry applies the methods and theories of physics to the study of chemical materials. It involves theoretical studies of chemical bonding using advanced computational methods and the investigation of the structures of solids and surfaces by a variety of instrumental methods including photon spectroscopies, X-ray techniques, and surface characterization.

The Department of Chemistry is on the approved list of the American Chemical Society and offers courses of study leading to the degrees of Bachelor of Science in Chemistry, with options in general chemistry, materials chemistry, and environmental chemistry. In addition, graduate study programs leading to the Master of Science in Chemistry and Doctor of Philosophy (Chemistry) are also offered.

The Department of Chemistry offers a program leading to both a Bachelor of Science and Master of Science in Chemistry within a period of five years. Students wishing to enroll in the program must declare their intentions at the end of the junior year and begin research for the MS thesis while still undergraduates. The program is designed so that the BS degree will normally be awarded at the end of four years and the MS approximately 15 months later. In order to enter this program the student’s undergraduate record must show that the final transcript will satisfy the requirements for admission to the WSU Graduate School. Further information on this program can be obtained from the Department of Chemistry.

A student beginning undergraduate work will begin with either Chem 105 or Chem 115. Student without high school chemistry will begin their study with Chem 101 prior to taking Chem 105 or Chem 115. Additionally, if a student has completed one year of Advanced Placement high school chemistry and has scored 5 on the Advanced Placement Exam, credit is granted for the Chem 105 / 106 sequence. If a student has completed one year of advanced placement high school chemistry and has scored 3 or 4 on the Advanced Placement Exam, credit is granted for Chem 105. Students who complete an International Baccalaureate program with a high level pass and a grade of 4 or more on the exam are given credit for Chem 101.

The requirements for all chemistry options are the same through the first semester of the junior year.

### Schedules of Studies

**Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.**

#### CHEMISTRY - ENVIRONMENTAL OPTION (125 HOURS)

The requirements for all chemistry options are the same throughout the first semester of the junior year.

**First Year**

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
<th>Course(s)</th>
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<tbody>
<tr>
<td>First Term</td>
<td>4</td>
<td>Chem 105 [P] (GER) or 115</td>
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<tr>
<td></td>
<td></td>
<td>Engl 101 [W] (GER)</td>
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<td></td>
<td>3</td>
<td>GenEd 110 [A] (GER)</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Math 171 [N] (GER)</td>
</tr>
<tr>
<td>Second Term</td>
<td>4</td>
<td>Biol 106 [B] (GER)</td>
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<tr>
<td></td>
<td>4</td>
<td>Chem 106 [P] (GER) or Chem 116</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>GenEd 111 [A] (GER)</td>
</tr>
<tr>
<td></td>
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<td>Math 172</td>
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</table>

**Second Year**

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
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</tr>
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<tbody>
<tr>
<td>First Term</td>
<td>3</td>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td></td>
<td>4</td>
<td>Chem 345</td>
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<td>2</td>
<td>Math 220</td>
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<td>2</td>
<td>Math 273</td>
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<td>Phys 201 [P] (GER)</td>
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<td>Chem 220</td>
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<td>4</td>
<td>Chem 346 / 348</td>
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<tr>
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<td>2</td>
<td>Chem 347</td>
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<td></td>
<td>4</td>
<td>Phys 202 [P] (GER)</td>
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<tr>
<td></td>
<td>3</td>
<td>Social Sciences [S,K] (GER)</td>
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<tr>
<td></td>
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<td>Complete Writing Portfolio</td>
</tr>
</tbody>
</table>
Chem 105 and 106, or 102 and 106. Students who have taken Chem 101 must take Chem 115 and 116 in place of Chem 105 and 106.

Footnotes
———

Environmental Electives

Chem 495

Chem 489

Chem 425

Chem 499

Engl 301 [W] or 402 [W] (GER)

Second Term
Hours
Arts & Humanities [H,G], Intercultural Studies [I,G,K] (GER)

MBioS 303

Elective

Third Year
First Term
Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER)

Chem 334 [M]

Chem 401

Chem 426

Chem 482

Chem 499

Engl 301 [W] or 402 [W] (GER)

Second Term
Hours
Chem 489

Chem 495

Environmental Electives

Tier III [T] Course (GER)

Fourth Year
First Term
Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER)

Chem 334 [M]

Chem 401

Chem 426

Chem 499

Elective

Second Term
Hours
Chem 410 [M]

Chem 495

Chem Electives

Engl 301 [W] or 402 [W] (GER)

Tier III [T] Course (GER)

Elective

Footnotes
———

1 Highly qualified students are encouraged to take Chem 115 and 116 in place of Chem 105 and 106. Students who have taken Chem 101 must take Chem 105 and 106, or 102 and 106.

2 Electives must be carefully chosen and may require prerequisites that are best taken in the first two years. Students are required to obtain advisor's authorization of elective credit in this program that may feature work in the areas of geology, microbiology, and engineering.

CHEMISTRY - GENERAL OPTION
(120 HOURS)
The requirements for all chemistry options are the same through the first semester of the junior year.

First Year
First Term
Hours
Chem 105 [P] (GER) or 115

Engl 101 [W] (GER)

GenEd 110 [A] (GER)

Math 171 [N] (GER)

Second Term
Hours
Bio 106 [B] (GER)

Chem 106 [P] (GER) or 116

GenEd 111 [A] (GER)

Math 172

Second Year
First Term
Hours
Arts & Humanities [H,G] (GER)

Chem 345

Math 220

Math 273

Phys 201 [P] (GER)

Second Term
Hours
Chem 220

Chem 346 / 348

Chem 347

Phys 202 [P] (GER)

Social Sciences [S,K] (GER)

Complete Writing Portfolio

Third Year
First Term
Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER)

Chem 334 [M]

Chem 401

Chem 426

Chem 499

Elective

Second Term
Hours
Arts & Humanities [H,G], Intercultural Studies [I,G,K] (GER)

MBioS 303

Fourth Year
First Term
Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER)

Chem 334 [M]

Chem 401

Chem 426

Chem 499

Elective

Second Term
Hours
Chem 410 [M]

Chem 495

Chem Electives

Engl 301 [W] or 402 [W] (GER)

Tier III [T] Course (GER)

Elective

Footnotes
———

1 Highly qualified students are encouraged to take Chem 115 and 116 in place of Chem 105 and 106. Students who have taken Chem 101 must take Chem 105 and 106, or 102 and 106.

2 Electives include: Chem 415, 416, 422, 424, 427, 430, 461, 480, 481, 514, 517, 518, and other 500-level courses; C E 341, 401, 415; Geol 102, 350, 403, 475, 480, 483; SoilS 201, 301, 415, 416, 421; ES/RF 101, 150, 445; Biol 372; Phil 370; BSysE 351; microbiology courses.

CHEMISTRY - MATERIALS OPTION
(122 HOURS)
The requirements for all chemistry options are the same through the first semester of the junior year.

First Year
First Term
Hours
Chem 105 [P] (GER) or 115

Engl 101 [W] (GER)

GenEd 110 [A] (GER)

Math 171 [N] (GER)

Second Term
Hours
Bio 106 [B] (GER)

Chem 106 [P] (GER) or 116

GenEd 111 [A] (GER)

Math 172

Second Year
First Term
Hours
Arts & Humanities [H,G] (GER)

Chem 345

Math 220

Math 273

Phys 201 [P] (GER)

Second Term
Hours
Chem 220

Chem 346 / 348

Chem 347

Phys 202 [P] (GER)

Social Sciences [S,K] (GER)

Complete Writing Portfolio

Third Year
First Term
Hours
Chem 222

Chem 330

Chem 331

Chem 398

Intercultural Studies [I,G,K] (GER)

MBioS 303

Second Term
Hours
Arts & Humanities [H,G, Tier III [T] Course (GER)

Elective

Fourth Year
First Term
Hours
GenEd 111 [A] (GER)

Chem 345

Math 220

Math 273

Phys 201 [P] (GER)

Second Term
Hours
Chem 346 / 348

Chem 347

Phys 202 [P] (GER)

Social Sciences [S,K] (GER)

Complete Writing Portfolio

Third Year
First Term
Hours
Chem 222

Chem 330

Chem 331

Chem 398

Intercultural Studies [I,G,K] (GER)

MBioS 303

Second Term
Hours
Arts & Humanities [H,G, Tier III [T] Course (GER)

Elective

Footnotes
———

1 Highly qualified students are encouraged to take Chem 115 and 116 in place of Chem 105 and 106. Students who have taken Chem 101 must take Chem 105 and 106, or 102 and 106.

2 Or other course involving computational techniques approved by the materials chemistry advisor.

3 Elective must be approved by materials chemistry advisor.
Minors

Chemistry

The minor in chemistry requires at least 16 hours selected from the courses below. All courses used for the minor must be completed with a grade of C or better. At least 9 of the hours must be upper-division taken in residence at WSU. Courses must be selected from at least two of the following areas (note that some courses have prerequisites): Organic: Chem 345, 346, 347, 348, 349, 540. Analytical: Chem 220, 222, 425, 426, 520. Physical/Inorganic: Chem 330, 331, 332, 333, 334, 336, 401, 480, 501, 531. Chem 499/495 – may be used for up to 4 hours. MBioS 331, 332, 333, 334, 336, 401, 480, 501, 531. Chem 345, 346, 347, 348, 349, 540. Analytical: Chem 220, 222, 425, 426, 520. Physical/Inorganic: Chem 330, 331, 332, 333, 334, 336, 401, 480, 501, 531. Chem 499/495 – may be used for up to 4 hours. MBioS courses may be substituted with approval.

Description of Courses

Chemistry Courses

Chem

101 [P] Introduction to Chemistry 4 (3-3)
Prereq satisfactory math placement score. Basic chemical concepts; atomic theory, periodicity, reaction stoichiometry, gases, solutions, acids, basis, pH, equilibrium, kinetics, energy, applications to life sciences.

102 [P] Chemistry Related to Life Sciences 4 (3-3)
Prereq Chem 101, 105, or 115 with a grade of C or better. Organic functional groups and their reactions; polymers, macro-molecules; carbohydrates, lipids, proteins, enzymes, nucleic acids, hormones, applications to life sciences.

105 [P] Principles of Chemistry I 4 (3-3)
Prereq one year high school chemistry or Chem 101; Math 107 or c//. Stoichiometry, structure, gases, liquids, solids, solutions, thermodynamics, kinetics, equilibrium, volumetric, and gravimetric analysis. Credit not granted for both Chem 105 and 115.

106 [P] Principles of Chemistry II 4 (3-3)
Prereq Chem 105 or 115 with a grade of C or better; Math 107 with a C or better or placement into Math 140 or higher. Acid-base, ionic, molecular, solubility, oxidation/reduction equilibria; kinetics, electrochemistry; systematic chemistry of the elements; coordination compounds. Credit not granted for both Chem 106 and 116.

115 [P] Chemical Principles Honors I 4 (3-3)
Prereq permission of dept; two years high school chemistry or one year Chem and one year Phys; Math 140 or 171 or c//. Stoichiometry, bonding, structure, gases, liquids, solids, solutions, thermodynamics, chemical reactions, analysis, spreadsheets in chemistry. Credit not granted for both Chem 115 and 105.

116 [P] Chemical Principles Honors II 4 (3-3)
Prereq Chem 115 with a grade of C or better or permission of dept. Descriptive inorganic chemistry, organic chemistry principles, acid/base, ionic and molecular equilibria, electrochemistry, thermodynamics, kinetics. Laboratory interfaced with computer. Credit not granted for both Chem 116 and 106.

150 [Q] Molecules and Science 3 (2-3)
Chemical basis and molecular structure of everyday materials; polymers, medicines, etc.

191 Independent Study in Modern Chemistry 5 (2-3)
May be repeated for credit; cumulative maximum 6 hours. Prereq Chem 101, 105, 115, or c//. Independent study in the theory and practice of modern chemistry; written report required. S, F grading.

220 Quantitative Analysis 2 Prereq Chem 106 or 116; Req c// in Chem 222. c// in Chem 222. Theories of quantitative chemical analysis; statistical evaluation of data; chemical equilibria; volumetric and gravimetric methods of analysis; introduction to electrochemistry.

222 Quantitative Analysis Laboratory 2 (0-6)
Prereq Chem 220 or c//. Application of classical methods in volumetric and gravimetric analysis; acid-base, redox and EDTA titrations; ion-exchange chromatography; introduction to spectrophotometry.

330 Problem Solving in Physical Chemistry 1 Prereq Chem 106 or 116; Math 172 each with a grade of C or better. Quantitative methods of data analysis and chemical concept development; emphasis on multivariable, matrix, and computer methods.

331 Physical Chemistry 3 Prereq Math 273; Phys 202 each with a grade of C or better. Concepts of physical chemistry; basic thermodynamics; free energy and entropy; phase equilibria; properties of solutions of electrolytes and non-electrolytes.

332 Physical Chemistry 3 Prereq Math 220; Chem 331 each with a grade of C or better. Elementary quantum theory; molecular structure and spectra; bonding theory; reaction rates; photochemistry and radiation chemistry; energy states and statistical thermodynamics.

333 Physical Chemistry Laboratory for Chemists 1 (0-3)
Prereq Chem 331 with a grade of C or better or c//. Experiments selected to meet the individual needs of students in biology, civil engineering, chemistry, or materials science.

334 [M] Physical Chemistry Laboratory 2 (0-6)
Prereq Chem 332 with a grade of C or better or c//; Chem 333 with a grade of C or better. Continuation of Chem 333. Experiments in molecular structure, atomic molecular spectroscopy, chemical kinetics including computational methods.

335 Physical Chemistry Laboratory for Chemical Engineers 1 (0-3)
Prereq Chem 331 with a grade of C or better or c//. Experiments selected to meet the needs of students majoring in chemical engineering.

336 Classical Physical Chemistry 2 Prereq Chem 331 with a grade of C or better. Concepts and applications of classical physical chemistry; transport and kinetic properties; electrochemistry; colloids; polymers and macromolecules.

338 Environmental Physical Chemistry 3 Prereq Chem 220, 222, Math 140 each with a grade of C or better. Physical chemistry for students in the environmental and biological sciences; emphasis on results and applications of physical chemical principles.

345 Organic Chemistry I 4 (3-3)
Prereq Chem 102 or 106 with a grade of C or better. Survey of organic chemistry providing an overview of the chemistry of the functional groups.

346 Organic Chemistry II 3 Prereq Chem 345 with a grade of C or better. Advanced concepts in organic chemistry including mechanisms and multistep-synthesis.

347 Organic Qualitative Analysis Laboratory 2 (0-6)
Prereq Chem 345 with a grade of C or better. Isolation, purification and identification of unknown compounds; for chemistry and biochemistry majors.

348 Problem Solving in Organic Chemistry 1 (0-2)
Prereq c// with Chem 346. Problem analysis and critical thinking development in organic chemistry; to be taken with Chem 346.

349 Advanced Organic Synthesis Laboratory 2 (0-6) Prereq Chem 345, 346 and 347 with grades of C or better.

350 [P] Chemistry in Contemporary Society 4 (3-3)
Prereq junior standing. Principles and applications of chemistry in the context of contemporary society.

391 Special Topics in Chemistry V 1-4 May be repeated for credit; cumulative maximum 6 hours. Prereq Chem 106 and permission of instructor. Focus on areas of current chemical research.

398 Undergraduate Seminar 1 Rec BC/BP or Chem major. S, F grading.

401 Modern Inorganic Chemistry 3 Prereq Chem 332 with a grade of C or better or c//. Properties of substances; periodic systems; oxidation-reduction and acid-base characteristics interpreted on the basis of atomic and molecular structure.

410 [M] Advanced Synthesis and Characterization 3 (1-6) Prereq Chem 346 and Chem 332 each with a grade of C or better. Synthesis and characterization of organic and inorganic compounds and solid-state materials; modern synthetic technology, characterization methods, and laboratory techniques.

415 Trace Element Analysis 2 Rec Chem 425. Techniques for the analysis of inorganic materials at trace levels. Credit not granted for both Chem 415 and 515.

416 Trace Organic Analysis 2 Rec Chem 425. Methods for the determination of trace amounts of organic compounds.
421 Radiochemistry and Radiotracers 2 Prereq Chem 331 with a grade of C or better. Credit not granted for both Chem 421 and 521.

422 Radiochemistry Laboratory 1 (0-3) Prereq Chem 222, 331; Phys 202 each with a grade of C or better. Credit not granted for both Chem 422 and 522.

425 Quantitative Instrumental Analysis 2 Prereq Chem 332 or 336 with a grade of C or better or c/. Computer interfacing applicable to chemical instrumentation; principles and applications of modern chromatography, spectrophotometry and electrochemical techniques.

426 Quantitative Instrumental Analysis Laboratory 2 (0-6) Prereq Chem 425 with a grade of C or better. Experience in modern analytical methods.

455 Teaching Chemistry 1 Prereq junior or senior standing; more than 12 hours Chem. Teaching chemistry: workshop for prospective undergraduate teaching assistants focusing on tutorials and labs.

480 Solid State Chemistry 3 Prereq Chem 332 with a grade of C or better. Properties, bonding and synthesis of solid state material; crystalline and amorphous solids and coatings.

481 [M] Environmental Chemistry I 3 Prereq Chem 220 and 222 each with a grade of C or better. Chemistry of natural and pollutant species and their reactions in the atmospheric environment. Credit not granted for both Chem 481 and 581.

482 [M] Environmental Chemistry II 3 Prereq Chem 220, 222, and 332 each with a grade of C or better. Chemistry and reactions of natural and pollutant species on the aquatic environment, sediments and soils.

489 Environmental Chemistry Project 2 (0-6) Prereq Chem 482. Laboratory projects in environmental chemistry or environmental analytical chemistry.

490 Current Topics in Chemistry V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq consent of instructor. Recent advances in the understanding and application of chemical systems.

491 Cooperative Education Internship V 2-5 May be repeated for credit; cumulative maximum 16 hours. Off-campus internship with business, industry, or government unit coordinated through the Professional Experience Program. S, F grading.

495 Directed Research 1 Prereq permission of instructor. Poster presentation of final research project.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Advanced Inorganic Chemistry 1 3 Rec Chem 332. Periodic table survey, typical compounds and their reactivity; models and reactivity, acid-base, oxidation-reduction, and electronic structure contributions.

503 Advanced Topics in Inorganic Chemistry V 1-3 May be repeated for credit. Rec Chem 501. Recent significant developments. Cooperative course taught by WSU, open to UI students (Chem 503).

506 Industrial Practicum 5 Prereq Chem 519; for preselected teachers. Industrial practicum for secondary chemistry teachers who are candidates for the MA degree in chemistry.

509 Chemical Group Theory 3 Rec Chem 332. Mathematical definitions of groups and representations, applications to chemical structure and spectra, ligand field theory, chemical reactions and selection rules.

510 Introduction to Proteomics 2 Prereq graduate standing or permission of the instructor; introductory biochemistry, MBioS 303 or equivalent. Techniques and applications for the analysis of the proteome.

512 Bioanalysis 2 Rec Chem 220 or 425. Methods for the measurement of biological compounds.


515 Trace Element Analysis 2 Rec Chem 425. Graduate-level counterpart of Chem 415; additional requirements. Credit not granted for both Chem 415 and 515.

517 Chromatography 2 Prereq Chem 425.

518 Electrochemistry 2 Prereq Chem 425.

520 Advanced Analytical Chemistry 3 Prereq Chem 425. Statistics in chemical analysis; sampling; control of contamination and losses in analysis; electrochemical methods; separation in analysis; spectroscopic techniques.

521 Radiochemistry and Radiotracers 2 Prereq Chem 331 with a grade of C or better. Graduate-level counterpart of Chem 421; additional requirements. Credit not granted for both Chem 421 and 521.

522 Radiochemistry Laboratory 1 (0-3) Prereq Chem 222, 331; Phys 202 each with a grade of C or better. Graduate-level counterpart of Chem 422; additional requirements. Credit not granted for both Chem 422 and 522.

527 Environmental Chemistry 2 Natural water chemistry, Agri processes, kinetics, thermodynamics, modeling in lake, river, and sea water.

529 Selected Topics in Analytical Chemistry V 1-3 May be repeated for credit. Selected current developments.

531 Advanced Physical Chemistry I 3 Prereq Chem 331. Chem 332 Classical physical chemistry including basic thermodynamics and kinetics; an introductory discussion of surface chemistry and electrochemistry.

532 Advanced Physical Chemistry II 3 Prereq Chem 332. Chem 332 Introduction to quantum mechanics; postulates of quantum mechanics; exact solutions and approximation methods.

534 Chemical Statistical Mechanics 3 Rec Chem 531, 532. Statistical theory of thermodynamic variables and chemical equilibrium; calculation of equilibrium properties from spectral data; fluctuations about equilibrium; quantum statistics.


536 Quantum Chemistry 3 Prereq Chem 532 or equivalent. Chem 332 or 531 Quantum mechanics applied to chemical problems: states of atoms and molecules, transitions and spectra, ladder operators and many electron methods.

537 Advanced Topics in Physical Chemistry V 1-3 May be repeated for credit. Selected subjects; irreversible thermodynamics; chemical bonding; NMR; ligand field theory; x-ray diffraction; neutron diffraction. Cooperative course taught by WSU, open to UI students (Chem 537).

540 Organic Reaction Mechanisms 3 Rec Chem 331, 346. The major classes of organic reaction mechanisms and their significance; kinetics and introductory theory.


543 Bioorganic Chemistry 3 Rec Chem 540. Chemistry of biological systems, medicinal chemistry, protein chemistry, enzyme mechanisms and inhibitors.

544 Advanced Topics in Organic Chemistry V 1-3 May be repeated for credit. Rec Chem 540. Current research in organic chemistry. Cooperative course taught by WSU, open to UI students (Chem 544).

545 Chemistry of Functional Groups 3 Prereq graduate standing. Modern synthetic reactions and physical methods used in exploring reaction mechanisms.

546 Spectroscopic Identification of Organic Compounds 3 Structural interpretation of mass spectrometry and IR, UV-VIS and NMR spectrometry of small molecule organic compounds.


550 Special Topics in Nuclear Processes and Radioactive Waste Management V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq permission of instructor. Fundamental chemistry of the nuclear industry, chemical processing and waste management.

555 Teaching Chemistry 1 Teaching chemistry; workshops for new graduate teaching assistants in chemistry focusing on tutorials and labs.
564 Molecular Phenomena 3 Rec Chem 461 or 561, 509; Phys 450. Phenomena which yield information on structures, energy levels, and interactions of molecules in solid, liquid, and gaseous phases.

570 Chemistry of Polymers and Biopolymers 3 Prereq C or better grade in Chem 345, 346, or MSE 402. Physical properties (molecular weight, rheology, glass transition temperatures) and synthetic methods (free radical, ionic, condensation) of artificial and biopolymers.

581 Environmental Chemistry I 3 Prereq Chem 220 and 222 each with a grade of C or better. Graduate-level counterpart of Chem 481; additional requirements. Credit not granted for both Chem 481 and 581.

590 Introduction to Research Topics 1 Presentation and description of research areas and projects of current interest to faculty.

591 Seminar in Inorganic Chemistry 1 May be repeated for credit. Presentation and discussion of topics in inorganic chemistry taken from research in progress or current literature.

592 Seminar in Analytical Chemistry 1 May be repeated for credit; cumulative maximum 6 hours. Presentation and discussion of topics in analytical chemistry taken from research in progress or current literature.

593 Seminar in Physical Chemistry and Materials Science 1 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Presentation and discussion of topics in physical chemistry and materials science taken from research in progress or current literature.

594 Seminar in Organic Chemistry 1 May be repeated for credit; cumulative maximum 6 hours. Presentation and discussion of topics in organic chemistry taken from research in progress or current literature.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

Department of Civil and Environmental Engineering

www.ce.wsu.edu
509-335-2876


Civil engineers plan, design, construct, and operate the physical works and facilities essential to modern life. Civil engineers are responsible not only for creating the facilities required by a modern civilization, but also are committed to the conservation and preservation of the environment. Examples of these facilities include bridges, highways, buildings, airports, flood control structures, purification plants for drinking water, waste treatment and disposal facilities, offshore structures, tunnels, irrigation systems, space satellites, and launching facilities.

The program leading to the Bachelor of Science degree in Civil Engineering is accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET).

The mission of the undergraduate program of the Department of Civil and Environmental Engineering is to provide a broad and comprehensive education that prepares our students to be successful in professional practice and advanced studies. The objectives of our undergraduate program are as follows: 1) to educate and equip a new generation of civil engineers to meet future challenges and needs of our profession; 2) to foster an environment that stimulates learning, provides excellence in instruction, and provides leadership in the development of new teaching methods; 3) to promote interdisciplinary education and integration of new technology and research within the undergraduate experience; 4) to provide our students with a high quality education in basic principles and practical applications; and 5) to instill a sense of social and ethical responsibility among our graduates. Courses can be selected to provide in-depth studies in environmental, geotechnical, hydraulic, structural, and/or transportation engineering.

Design and planning are essential in the civil engineering profession. Accordingly, these activities are introduced in early C E courses. As students advance, they face open-ended assignments with alternative solutions, feasibility studies, safety considerations, economics, social and environmental impacts and other concerns that test their creative ability. All students complete a senior design class in which much of earlier course work is applied.

All seniors are required to take the Fundamentals of Engineering (FE) exam prior to graduation. Two purposes of this exam are: (1) It is a required step in becoming a professional engineer; (2) It serves as an assessment tool for meeting the department's objectives.

Because of the ever-increasing knowledge required to practice at high levels of competence in the specialized branches of civil engineering, an educational preparation of five or more years of college study is becoming more important. By an appropriate choice of electives the undergraduate curriculum may be integrated with a graduate program to provide a continuous schedule of studies leading to both the bachelor's and master's degrees.

The department offers courses of study leading to the degrees of Bachelor of Science in Civil Engineering, Master of Science in Civil Engineering, Master of Science in Environmental Engineering, and Doctor of Philosophy (Civil Engineering).

The department participates in interdepartmental programs leading to the degrees of Master of Science in Environmental Science, and Master of Regional Planning.

Computer Requirement

All incoming Civil and Environmental Engineering students are required to purchase laptop computers. Please contact the department for details and specifications and/or visit www.ce.wsu.edu.

Transfer Students

Students who are planning to transfer to civil engineering at Washington State University from other institutions should coordinate their program with the department chairperson to establish an integrated program leading to the bachelor's degree. Inquiries concerning specific questions are welcome. A strong preparation in mathematics and physics is necessary prior to transfer to minimize the time required to complete the degree requirements. The requirements for direct entry into the Department of Civil and Environmental Engineering upon transfer are the same as listed above for certification. The Admissions Office will handle admissions applications from transfer students and the Department of Civil & Environmental Engineering will handle certification applications.

Preparation for Graduate Study

As preparation for academic work toward an advanced degree in civil engineering or environmental engineering, a student should have completed substantially the equivalent of the schedule of studies.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

CIVIL ENGINEERING REQUIREMENTS

(130 HOURS)

At least 50 of the total hours required for this degree must be in 300-400-level courses. None of the courses listed below may be taken on a pass, fail basis and a grade of C or better in all C E courses is required for graduation.

Students who will be completing at least 45 semester hours of course work at the end of the semester including C E 211, Math 171, 172, and Phys 201 or equivalents are eligible to apply for certification into the Department of Civil and Environmental Engineering. The number of students certified into the department depends upon the available resources and facilities. The best qualified students, based on cumulative GPA and grades in the prerequisite courses listed above, will be certified into the department until the carrying capacity is reached.
Civil and Environmental Engineering

Experiential Requirement

Students within the Department of Civil and Environmental Engineering must complete one of the following experiential requirements:

1. An internship of at least eight weeks duration, with at least one credit of CE 495.
2. A research position of at least eight weeks duration under the supervision of a departmental faculty member or approved mentor, with at least one credit of CE 499.
3. Study abroad for six or more credit hours. International students in the Department of Civil and Environmental Engineering will meet this requirement through their study in the United States.
4. Participation in a recognized ROTC program. Veterans in the Department of Civil and Environmental Engineering will have met this requirement through their prior service in the armed forces.
5. A leadership or service experience of at least one semester, subject to departmental approval, with at least one credit of CE 499.

First Year

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<th>Term</th>
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Second Year

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Third Year

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Fourth Year

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Footnotes

1. Classes that must be completed prior to certification.
2. Chem 106 strongly recommended for an Environmental and Infrastructure Engineering emphasis; Geol 102 strongly recommended for a Structural Engineering emphasis.
3. Elective courses: The total credit hours for elective courses must be distributed such that at least three courses, not including the lab, are DES (design emphasis) in order for a student to qualify for a degree. C E electives including C E laboratory will be selected from at least two different areas (environmental, geotechnical, hydraulics, structural, and transportation/pavement).

Infrastructure Engineering Emphasis (Alternate Senior Year)

The alternate senior year schedule shown below is offered to those students interested in studying an infrastructure engineering emphasis. This would substitute for the senior year above and complete the study schedule for the Bachelor of Science degree in Civil Engineering.

Fourth Year

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
<th>Courses</th>
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</thead>
<tbody>
<tr>
<td><strong>First Term</strong></td>
<td></td>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
<td></td>
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<tr>
<td>C E 410</td>
<td>3</td>
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<tr>
<td>C E 433 or 425</td>
<td>3</td>
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<tr>
<td>C E 473</td>
<td>3</td>
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<tr>
<td>C E 474 or 4651</td>
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<tr>
<td><strong>Second Term</strong></td>
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<tr>
<td>C E 400</td>
<td>3</td>
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<tr>
<td>C E 430 or 4651</td>
<td>3</td>
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<tr>
<td>C E 435</td>
<td>3</td>
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<tr>
<td>C E 476 or 434</td>
<td>3</td>
<td></td>
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<tr>
<td>C E 480 [M]</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Tier III Humanities or Social Sciences Course [T] (GER)</td>
<td>3</td>
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</tbody>
</table>

Footnotes

1. Either course may be selected, but C E 465 is required.

Description of Courses

Civil Engineering Courses

C E

174 Introduction to Meteorology and the Atmospheric Environment

3 Introduction to meteorology, the atmospheric processes; weather, air pollution, and environmental topics.

211 Statics

3 Prereq Math 172 or c//; Phys 201 or c//. Engineering mechanics concepts; force systems; static equilibrium; centroids, centers of gravity; shear and moment diagrams; friction; moments of inertia. Cooperative course taught jointly by WSU and UI (Engr 210).

215 Mechanics of Materials

3 Prereq C E 211 with a C or better. Concepts of stress, strain, and their relationships; axial loads, torsion and bending; combined stress; properties of materials; columns, repeated loadings. Cooperative course taught jointly by WSU and UI (Engr 350).

301 Introduction to Surveying with CAD

4 (2-6) Prereq Math 171; certified major in C E or instructor permission. Basic principles of surveying data collection, analysis, and application; measuring distances and angles using total stations and global positioning systems; analysis of errors in measurements; application of surveying data to engineering design using AutoCAD and Civil 3D software.

315 Fluid Mechanics

3 Prereq M E 212; Math 315. Fluid statics, laminar and turbulent flow, similitude, pipe flow, boundary layer, lift and drag and measurement techniques.

317 [M] Geotechnical Engineering

3 (2-3) Prereq C E 215 with a C or better; C E 315 or c//; certified major in C E or instructor permission. Structure, index properties, and classification of soils; compaction; effective stress; seepage; consolidation and shear strength.
322 Transportation Engineering  3 Prereq Math 360 or c//; 301; certified major in CE or instructor permission. Transportation engineering; demand and performance functions; geometric design; capacity and control of transport modes.

330 Introduction to Structural Engineering  3 Prereq CE 215 with a C or better; certified major in CE or instructor permission. Introduction to structural analysis and design; structural modeling; design philosophies; deflections; indeterminate analysis by the Force Method.

341 Introduction to Environmental Engineering  3 Prereq Biol 102 or MBS 101; Chem 105. Impact of pollutants on the environment; pollution sources and sinks; engineering aspects of air and water quality; introduction to pollution control.

351 Water Resources Engineering  3 Prereq CE 315 with a C or better; certified major in CE or instructor permission. Application of fluid mechanics to hydraulic infrastructure, principles of open channel flow, and introduction to surface and ground water hydrology.

400 Highway Materials Engineering  3 (2-3) Prereq Engl 402; senior standing; certified major in CE or instructor permission. Basic properties and mix designs of aggregates, asphalt, concrete and recycled materials; quality assurance, quality control.

403 Environmental Geology  3 Prereq Geol 101 or 102. Same as Geol 403.

408 Air Pollution Control Engineering  3 Prereq senior in engineering or physical sciences. Measurement and control of air pollution; engineering design calculations; equipment and process. Credit not granted for both CE 408 and 508. Cooperative course taught jointly by WSU and UI (CH E 575).

409 Air Quality Modeling  3 Prereq one semester calculus and physics. Theory and practice of air quality modeling with an emphasis on use of EPA regulations; principles of atmospheric pollutant dispersion and air quality models.

414 Structural Design Laboratory  3 (1-6) Prereq either C E 431, 433, 434, 436, or c//, Engl 402; certified major in CE or instructor permission. Senior lab requiring integration of previous course work into the execution of design projects and the assessment of experimental test data; design codes and standards, load determination, load path, influence lines; applications in concrete, masonry, steel, and wood.

415 Environmental Measurements  3 (1-6) Prereq C E 341, Engl 402; certified major in CE or instructor permission. Theory and laboratory measurement techniques used in analyzing environmental quality parameters. Credit not granted for both C E 415 and 515.

416 Hydraulic Engineering Laboratory  3 (1-6) Prereq C E 315, Engl 402; certified major in CE or instructor permission. Experiments related to fluid flow principles and their application to hydraulic engineering.

418 Hazardous Waste Engineering  3 or 4 Prereq C E 341 with a C or better; certified major in CE or instructor permission. Hazardous waste properties, chemodynamics, and health effects; introduction to risk assessment and hazardous waste remediation. Credit not granted for both CE 418 and 518. Cooperative course taught by WSU, open to UI students (CE 435).

419 Hazardous Waste Treatment  3 Prereq C E 418 with a C or better; certified major in CE or instructor permission. Principles of operation and application of processes in design of technologies used in hazardous waste treatment and remediation. Credit not granted for both C E 419 and 519.

425 Soil and Site Improvement  3 Prereq C E 317 with a C or better; certified major in CE or instructor permission. Compaction theory and methods; deep densification of soils; advanced consolidation theory, preloading, vertical drains, chemical stabilization, grouting; design with geosynthetics. Credit not granted for both C E 425 and 525. Cooperative course taught by WSU, open to UI students (CE 567).

430 Analysis of Indeterminate Structures  3 Prereq C E 330 with a C or better; Math 220; E E 221; certified major in CE or instructor permission. Stiffness methods for the analysis of trusses, beams, and frames; matrix models; and computer applications.

431 Structural Steel Design  3 Prereq C E 330 with a C or better; certified major in CE or instructor permission. Design of steel structures by load and resistance factor design (LRFD); behavior and design of beams, columns, tension members and connections.

433 Reinforced Concrete Design  3 Prereq C E 330 with a C or better; certified major in CE or instructor permission. Behavior, analysis, and design of reinforced concrete structures; flexure; shear; bond; serviceability requirements; design of beams, columns, and slabs.

434 Prestressed Concrete and Reinforced Masonry Design  3 Prereq C E 433 with a C or better; certified major in CE or instructor permission. Behavior, analysis, and design of pretensioned and post-tensioned prestressed concrete structures; behavior and design of reinforced masonry structures. Credit not granted for both C E 434 and 534. Cooperative course taught by WSU, open to UI students (CE 442).

435 Foundations  3 Prereq C E 317 with a C or better; certified major in CE or instructor permission. Site investigation; bearing capacity, settlement and design of shallow foundations, piles and piers; design of retaining walls. Cooperative course taught by WSU, open to UI students (CE 461).

436 Design of Timber Structures  3 (2-3) Prereq C E 330 with a C or better; certified major in CE or instructor permission. Engineering properties of wood materials; analysis and design of members, connections, trusses, shearwalls and structural diaphragms; durability and moisture effects on engineered wood products. Cooperative course taught by WSU, open to UI students (CE 443).

437 Structural Composites Design  3 Prereq C E 330. Behavior, analysis and design of fiber-reinforced plastic composite structures; microscopy; ply and laminate mechanics; reinforcement of concrete and wood.

442 Water and Wastewater Treatment Design  3 Prereq C E 341 with a C or better; certified major in engineering or environmental science. Water and wastewater treatment processes and design.

450 Hydraulic Engineering Design  3 Prereq C E 351 with a C or better; certified major in CE or instructor permission. Hydraulic design and planning of facilities associated with gravity controlled and pressurized flow. Cooperative course taught jointly by WSU and UI (CE 422).

451 Open Channel Flow  3 Prereq C E 351 with a C or better; certified major in CE or instructor permission. Steady, non-uniform flow; controls and transitions in fixed-bed channels. Credit not granted for both C E 451 and 551.

460 Advanced Hydrology  3 Prereq C E 351 with a C or better; certified major in CE or instructor permission. Components of the hydrologic cycle; conceptual models; watershed characteristics; probability/statistics in data analysis; hydrographs; computer models; and design applications. Credit not granted for both C E 460 and 560.

462 Engineering Law and Contracts  2 Development of law, courts, and ethics; law on contracts, agency, sales, property, and patterns; specifications; preparation of contract documents. Cooperative course taught by UI (CE 484), open to WSU students.

463 Engineering Administration  3 Engineering economy; annual cost, present worth, rate of return, and benefit-cost ratio in engineering decision making; basic contract law.

465 [M] Integrated Civil Engineering Design  3 (1-6) Prereq senior in CE, Arch, B E, M E, or E E; registered for FE/EIT exam. Civil engineering applications to planning and design; problem synthesis, data analysis, decision making and reporting; design of complete projects that include local and world wide problems through interdisciplinary teams.

473 Pavement Design  3 Prereq C E 215, 317; Econ 101 or 102, Math 360; c// in C E 322. Pavement performance evaluation, material characterization, traffic analysis, pavement structural response analysis, transfer function application, and pavement design procedures for both flexible and rigid pavements including MEPDG design procedure. Cooperative course taught jointly by WSU and UI (CE 475).
510 Advanced Topics in Transportation Engineering 3 V 2-4 May be repeated for credit; cumulative maximum 9 hours. Prerequisite CE 322; statistics course. Special topics course in transportation engineering. Cooperative course taught jointly by WSU and UI (CE 571).

507 Seepage and Earth Dams 3 Principles of earth-dam design, failures, considerations in construction; principles governing flow of water through soils. Cooperative course taught by UI (CE 563), open to WSU students.

508 Air Pollution Control Engineering 3 Prerequisite CE 408; statistics course and chemistry. Cooperative course taught jointly by WSU and UI (CE 581).


512 Dynamics of Structures 3 Equations of motion, free vibration, damping mechanisms, harmonic, impulse, and seismic loading; shock and seismic response spectra, time and frequency domain analysis, modal analysis, structural dynamics in building codes. Cooperative course taught jointly by WSU and UI (CE 543).

514 Advanced Mechanics of Materials 3 Elastic stress-strain relations, shear center, unsymmetrical bending, curved beams, elastic stability, elastically supported beams, energy methods, thin plates, shells.

515 Environmental Measurements 3 Prerequisite CE 315. Engie 402. Graduate-level counterpart of CE 415; additional requirements. Credit not granted for both CE 415 and 515.

517 Mechanisms of Sediment Transport 3 Cohesive and non-cohesive sediments; initiation of sediment motion; sediment transport; suspended and bed load entrainment; models of sediment transport for alluvial and gravel bed streams, sediment-flow interaction; river morphology and ecological restoration.

518 Hazardous Waste Engineering 3 Prerequisite CE 418 or 419; additional requirements. Credit not granted for both CE 418 and 518. Cooperative course taught by WSU, open to UI students (CE 435).

519 Hazardous Waste Treatment 3 Prerequisite CE 418. Graduate-level counterpart of CE 419; additional requirements. Credit not granted for both CE 419 and 519.

521 Fundamentals of Fluid Flow 3 Prerequisite CE 315 or ME 303. Fundamental equations of compressible viscous flow, Newtonian viscous-flow equations, laminar boundary layers, stability of laminar flows, incompressible turbulent flow.

524 Geotechnical Earthquake Engineering 3 Faulting and seismicity; site response analysis; influence of soil on ground shaking; soil liquefaction; probabilistic seismic hazard assessment; seismic earth pressures; seismic slope stability. Cooperative course taught by WSU, open to UI students (CE 566).

525 Soil and Site Improvement 3 Prerequisite CE 317. Graduate-level counterpart of CE 425; additional requirements. Credit not granted for both CE 425 and 525. Cooperative course taught by WSU, open to UI students (CE 567).


530 Advanced Design of Steel Structures 3 Prerequisite CE 431. Plate girder design; local and global buckling; plastic collapse analysis; shear and Moment-resisting connections; eccentrically-loaded connections. Cooperative course taught jointly by WSU and UI (CE 542).

531 Probability and Statistical Models in Engineering 3 Engineering applications of probability and statistics. Monte Carlo simulation; model estimation and testing; probabilistic characterizations of loads and material properties; risk and reliability analyses. Cooperative course taught jointly by WSU and UI (CE 541).

532 Finite Elements 3 Theory of finite elements; applications to general engineering systems considered as assemblages of discrete elements. Cooperative course taught jointly by WSU and UI (CE 546).

533 Advanced Reinforced Concrete Design 3 Prerequisite CE 433. Composite design; slab design; limit state design; footings; retaining walls; deep beams; brackets and corbels; torsion; seismic design; shear walls. Cooperative course taught by WSU, open to UI students (CE 547).

534 Prestressed Concrete and Reinforced Masonry Design 3 Graduate-level counterpart of CE 434; additional requirements. Credit not granted for both CE 434 and 534. Cooperative course taught by WSU, open to UI students (CE 442).

535 Advanced Finite Elements 3 Prerequisite CE 534. Finite element analysis; plate and shell analysis; nonlinear solution methods for finite strain/rotation and nonlinear materials.

536 Nondestructive Testing of Structural Materials 3 Principles of nondestructive testing applied to wood-based materials, steel, concrete, and masonry.

537 Advanced Topics in Structural Engineering 3 May be repeated for credit; cumulative maximum 9 hours. Elastic stability, plates and shells, other relevant topics. Cooperative course taught by WSU, open to UI students (CE 549).

538 Earthquake Engineering 3 Prerequisite CE 512. Seismology, size of earthquakes, seismic ground motion, seismic risk, behavior of structures subjected to earthquake loading seismic response spectra, seismic design codes, lateral force-resisting systems, detailing for inelastic seismic response.

539 Advanced Wood Engineering 3 Prerequisite CE 436. Engineering properties of wood materials; theory and design of wood composites, connections and load-sharing systems; performance criteria and durability.

541 Environmental Engineering Unit Operations 3 Prereq C E 442; Math 315. Theory and design of physical and chemical unit operations of water and wastewater treatment systems. Cooperative course taught jointly by WSU and UI (CE 531).

542 Environmental Engineering Unit Processes 3 Prereq C E 541. Biochemical energetics and kinetics; biological waste treatment processes; nutrient removal; advanced wastewater treatment design. Cooperative course taught jointly by WSU and UI (CE 534).

543 Advanced Topics in Environmental Engineering Practice V 1-4 May be repeated for credit; cumulative maximum 9 hours. Analysis and evaluation of air/water/soil pollution problems, new measurement methods, hazardous waste treatment, global climate change, and water/wastewater treatments.

544 Wastewater Treatment System Design 3 (2-3) Prereq C E 542 or c/l. Application of unit operations and processes to design of integrated treatment systems; critical review of designs. Cooperative course taught jointly by WSU and UI (CE 532).

547 Principles of Environmental Engineering 3 Prereq C E 315, 341; Math 315. Principles of chemistry, microbiology, thermodynamics, material and energy balances, and transport phenomena, for environmental engineers.

548 Advanced Topics in Water Quality Engineering Systems V 2-4 May be repeated for credit; cumulative maximum 9 hours. Analysis and evaluation of natural water systems for retention and transport of pollutants and their associated impacts.

549 Instrumentation and Measurements 3 (2-3) Prereq Math 172; Phys 102 or 202. Same as BSysE 541.

551 Open Channel Flow 3 Prereq C E 351. Graduate-level counterpart of C E 451; additional requirements. Credit not granted for both C E 451 and 551.

552 Advanced Topics in Hydraulic Engineering V 1-3 May be repeated for credit; cumulative maximum 9 hours. Prereq C E 315. Cavitation, air entrainment, hydraulic machinery, similitude, mixing in rivers and estuaries, hydraulic design.

556 Numerical Modeling in Fluid Mechanics 3 Prereq C E 315. Fundamental concepts in development of numerical models for fluid flow with applications to steady and unsteady flows.

560 Advanced Hydrology 3 Prereq C E 351. Graduate-level counterpart of C E 460; additional requirements. Credit not granted for both C E 460 and 560.

561 Water Resources Systems 3 Concepts in water development; coordination of development of other natural resources; systems approach and optimization techniques. Cooperative course taught jointly by WSU and UI (CE 523).

567 Advanced Characterization of Highway Materials 3 Basic and advanced level of the fundamentals of material response to static and repeated loading; emphasis on the deformation and fatigue behavior of asphalt mixtures.

569 Field Methods in Hydrogeology 2 (1-3) Prereq Geol 475; Geol 577 or 579. Same as Geol 569.

571 Meteorology 3 Prereq Math 273, Phys 201 or comparable. Basic meteorology; atmospheric thermodynamics; cloud physics, synoptic meteorology; radiative processes; climate change. Cooperative course taught jointly by WSU and UI (Geog 504).

572 Advanced Pavement Analysis 3 Prereq C E 473. Fundamentals of pavement-vehicle interaction and the mechanics of pavement response and damage.


577 Advanced Groundwater Hydraulics 3 Prereq Geol 475, Math 315. Modeling of subsurface flow in saturated, unsaturated, and multiluid systems; analytic and numerical solutions techniques; review of statistical geohydrologic methods.

579 Groundwater Geochemistry V 2-4 Prereq Chem 331, Geol 475. Same as Geol 579.

580 Graduate Seminar 1 May be repeated for credit; cumulative maximum 2 hours. Lectures and reports on current developments in research and practice.

581 Environmental Engineering Analysis 2 (1-3) Prereq C E 541. Theoretical and laboratory methods for development of design criteria for environmental systems.

583 Engineering Aspects of Environmental Chemistry V 2-4 Prereq C E 442; instructor permission. Chemical principles as applied to environmental systems, water supply and pollution control engineering. Cooperative course taught by WSU, open to UI students (CE 553).

584 Environmental Microbiology 3 Prereq graduate standing; instructor permission. Provides a fundamental understanding of microbiology to engineering and environmental science students; cell structure and metabolism; microbial ecology and diversity.

588 Atmospheric Turbulence and Air Pollution Modeling 3 Prereq C E 571. Physical aspects of atmospheric turbulence, theoretical developments in atmospheric diffusion, and applied computer modeling with regulatory and research models.

590 Spectroscopy and Radiative Transfer of the Atmosphere 3 Prereq by interview only. Concepts of radiative transfer and molecular spectra in the troposphere and stratosphere with applications to trace gas measurements.

591 Aerosol Dynamics and Chemistry 3 Prereq graduate standing. Chemical and physical properties of atmospheric aerosols; sources, sinks, and transformation processes.

593 Polymer Materials and Engineering 3 Prereq MSE 402. Same as MSE 543.

594 Natural Fibers 3 Prereq graduate standing. Same as MSE 544.

595 Polymer and Composite Processing 3 Prereq graduate standing. Same as MSE 545.

596 Engineered Wood Composites 3 Prereq graduate standing. Same as MSE 546.

597 Polymers and Surfaces for Adhesion 3 Prereq MSE 402 or 404. Same as MSE 547.

598 Natural Fiber Polymer Composites 3 Prereq graduate standing. Same as MSE 548.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master's Research, Thesis and/or Examination Variable credit S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

Edward R Murrow College of Communication

www.communication.wsu.edu

Murrow Add 124
509-335-1586


Communication is a vital force in society. New practices and techniques in communication re-
quire that instruction and research explain these phenomena and prepare students to take their place in this field.

The curricula of the Edward R. Murrow College of Communication lead to the degrees of Bachelor of Arts in Communication, Master of Arts in Communication and Doctor of Philosophy (Communication).

Students may major in communication, with an emphasis in advertising, applied intercultural communication, broadcast news, broadcast production, broadcast management, communication studies, journalism, organizational communication, or public relations. Students also may fashion a general communication curriculum. The undergraduate program reflects a blending of professional, liberal arts, and theory and research courses.

The College cooperates with the College of Agricultural, Human, and Natural Resource Sciences in support of the agricultural communications option.

Supplementing the classrooms and laboratories of the Murrow College are the professional internship programs, campus radio and television facilities, and Student Publications, including a daily newspaper. Students graduating from the Edward R. Murrow College of Communication will be able to: 1) effectively and efficiently collect and evaluate information utilizing traditional methods and new techniques and technology; 2) communicate (written and verbal) clearly and succinctly to varied audiences; 3) carefully observe, interpret and accurately portray events, information, and activities to a diverse society; 4) shape messages to reflect the differing demands and strengths of different and developing media; 5) consider the legal, social, and economic contexts in which media operate and evolve; 6) examine the role and effects of media in contemporary society; 7) understand the ethical and civic responsibilities that accompany a life long career in communication in a democratic society; 8) understand the professionalism required to be successful in a highly competitive industry, and 9) compete successfully in regional and national job markets.

Agricultural Communications

See Agricultural and Food Systems for complete information under the Agricultural Business and Technology Systems, Communication Option.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

Certification Requirements

To certify a major in communication, a student must meet the following minimum requirements: (1) Complete Com 101, 245, 265, 295 and ComSt 102; (2) Earn a grade no lower than C in Com 295. The Communication GPA and the cumulative GPA are averaged together. Students will be placed in rank order. The top students then are certified based on how many spots are available that semester. Students transferring into the School with 55 or more hours should complete the certification requirements within two semesters. All students should certify before earning 90 credit hours.

General School Requirements

Each student will complete the requirements of one of the following programs and accumulate an emphasis of 18 hours (9 upper-division hours) in a second department. At least 75 of the 120 hours required for the Bachelor of Arts degree in Communication must be taken in other departments. Transfer students, in meeting the requirements of their chosen program, must take a minimum of 15 credit hours in the School.

COMMUNICATION - ADVERTISING OPTION (120 HOURS)

All options require a minimum of 39 semester hours in communication. Students have three options to meet the enrichment/internship requirements: 6 hours of internship credit; 3 hours of internship credit and 3 hours of upper-division communication courses; or 6 hours of upper-division communication courses.

First Year

First Term

First Term Hours

Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER) 3
Com 101 [S] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 A (GER) 3
Social Sciences [S,K] (GER) 3

Second Term

Second Term Hours

Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER) 3
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
ComSt 102 C (GER) 3
GenEd 111 A (GER) 3
Science Elective (GER) 4

Second Year

First Term

First Term Hours

Com 245 3
Com 265 3
Math Proficiency [N] (GER) 3
Emphasis Elective 3

Second Term

Second Term Hours

Adver 380 3
Arts & Humanities [H,G] (GER) 3
Com 295 3
Intercultural Studies [L,G,K] (GER) 3
Physical Sciences [P] (GER) 4
Apply for Certification
Complete Writing Portfolio

Third Year

First Term

First Term Hours

Adver 381 M 3
Foreign Language, if necessary, or Electives 6
Mktg 360 3
Emphasis Elective 3

Second Term

Second Term Hours

300-400-level Emphasis Electives 6
Adver 382 3

Fourth Year

First Term

First Term Hours

300-400-level Emphasis Elective 3
Emphasis Elective 3
Internship/Enrichment 3
Seminar [M] 3
Upper-division Core 3
Second Term

Second Term Hours

Adver 480 3
Foreign Language, if necessary, or Electives 6
Internship/Enrichment 3
Tier III [T] Course (GER) 3

Footnotes

1 18 credits in another department, 9 of which are 300-400-level.

2 Students must take one year of foreign language if two years of a foreign language was not taken at the high school level.


4 Any seminar numbered 475 in communication.

COMMUNICATION - APPLIED INTERCULTURAL OPTION (120 HOURS)

First Year

First Term

First Term Hours

Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER) 3
Com 101 [S] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 A (GER) 3

Second Term

Second Term Hours

Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER) 3
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
ComSt 102 C (GER) 3
GenEd 111 A (GER) 3
Science Elective (GER) 4

Second Year

First Term

First Term Hours

Com 245 3
Com 265 3
Math Proficiency [N] (GER) 3
Emphasis Elective 3

Second Term

Second Term Hours

Adver 380 3
Arts & Humanities [H,G] (GER) 3
Com 295 3
Intercultural Studies [L,G,K] (GER) 3
Physical Sciences [P] (GER) 4
Apply for Certification
Complete Writing Portfolio

Third Year

First Term

First Term Hours

Adver 381 M 3
Foreign Language, if necessary, or Electives 6
Mktg 360 3
Emphasis Elective 3

Second Term

Second Term Hours

300-400-level Emphasis Electives 6
Adver 382 3

Biological Sciences [B] (GER) 4
Upper-division Core 3

Third Year

First Term

First Term Hours

Com 321 3
ComSt 335 3
Foreign Language, if necessary, or Elective 4
Upper-division Core 3
Elective 3

127
**Second Term**

- Biological Sciences [B] (GER) 4
- ComSt 421 3
- ComSt 435 3
- Minor Elective 3
- Upper-division Core 3

**Fourth Year**

**First Term**

- 300-400 level Minor Electives 6
- ComSt 475 [M] 3
- Foreign Language or Electives 6

**Second Term**

- 300-400 level Minor Elective 3
- Internship/Enrichment 6
- Tier III Course [T] (GER) 3
- Elective 2

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**First Year**

**First Term**

- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Com 101 [S] (GER) 3
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

**Second Term**

- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- ComSt 102 [C] (GER) 3
- GenEd 111 [A] (GER) 3
- Science Elective (GER) 4

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**Second Year**

**First Term**

- Acctg 230 3
- Com 245 3
- Com 265 3
- Intercultural Studies [I,G,K] (GER) 3
- Math Proficiency [N] (GER) 3

**Second Term**

- Arts & Humanities [H,G] (GER) 3
- Com 295 3
- EconS 102 [S] (GER) 3
- Foreign Language, if necessary, or Elective 3
- Physical Sciences [P] (GER) 4
- Apply for Certification Complete Writing Portfolio

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**Third Year**

**First Term**

- Adver 380 or Bdcest 360 3
- B Law 210 or Dec S 360 3
- Bdcest 350 3
- Bdcest 481 3
- Biological Sciences [B] (GER) 4

**Second Term**

- Bdcest 355 or 365 [M] 3
- Com 415 3
- MgrOp 301 3
- Mktg 360 3
- Elective 3

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**Fourth Year**

**First Term**

- Bdcest 455 or 465 [M] 3
- Bdcest 475 [M] 3
- EconS 320, 322, or Fin 325 3
- Foreign Language, if necessary, or Elective 3

**Second Term**

- Com 409 3
- Com 440 3
- Internship/Enrichment 3
- Tier III Course [T] (GER) 3
- Elective 3

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Footnotes

1 Students must take one year of foreign language if two years of a foreign language was not taken at the high school level.
2 Upper-division core: Com 420, 440, 450, 470, ComSt 324, 385, 401, 485, 488.

**COMMUNICATION - BROADCAST MANAGEMENT OPTION (120 HOURS)**

**First Year**

**First Term**

- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Com 101 [S] (GER) 3
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

**Second Term**

- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- ComSt 102 [C] (GER) 3
- GenEd 111 [A] (GER) 3
- Science Elective (GER) 4

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**Second Year**

**First Term**

- Acctg 230 3
- Com 245 3
- Com 265 3
- Intercultural Studies [I,G,K] (GER) 3
- Math Proficiency [N] (GER) 3

**Second Term**

- Arts & Humanities [H,G] (GER) 3
- Com 295 3
- EconS 102 [S] (GER) 3
- Foreign Language, if necessary, or Elective 3
- Physical Sciences [P] (GER) 4
- Social Sciences [S,K] (GER) 3
- Apply for Certification Complete Writing Portfolio

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**Third Year**

**First Term**

- Adver 380 or Bdcest 360 3
- B Law 210 or Dec S 360 3
- Bdcest 350 3
- Bdcest 481 3
- Biological Sciences [B] (GER) 4

**Second Term**

- Bdcest 355 or 365 [M] 3
- Com 415 3
- MgrOp 301 3
- Mktg 360 3
- Elective 3

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**Fourth Year**

**First Term**

- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Com 101 [S] (GER) 3
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

**Second Term**

- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- ComSt 102 [C] (GER) 3
- GenEd 111 [A] (GER) 3
- Science Elective (GER) 4

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Footnotes

1 18 credits in another department, 9 of which are 300-400-level.
2 Students must take one year of foreign language if two years of a foreign language was not taken at the high school level.
3 Upper-division core: Bdcest 481, ComSt 324, 385, 401, 485, 488, Jour 405, 425
4 For Broadcast News degree program, take Bdcest 365 [M]; for Broadcast Production, take Bdcest 355.
5 For Broadcast News degree program, take Bdcest 465 [M]; for Broadcast Production, take Bdcest 455.
6 Any seminar numbered 475 in communication.

**COMMUNICATION - COMMUNICATION STUDIES OPTION (120 HOURS)**

**First Year**

**First Term**

- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Com 101 [S] (GER) 3
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

**Second Term**

- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- ComSt 102 [C] (GER) 3
- GenEd 111 [A] (GER) 3
- Science Elective (GER) 4

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**Second Year**

**First Term**

- Acctg 230 3
- Com 245 3
- Com 265 3
- Intercultural Studies [I,G,K] (GER) 3
- Math Proficiency [N] (GER) 3

**Second Term**

- Arts & Humanities [H,G] (GER) 3
- Com 295 3
- EconS 102 [S] (GER) 3
- Foreign Language, if necessary, or Elective 3
- Physical Sciences [P] (GER) 4
- Social Sciences [S,K] (GER) 3
- Apply for Certification Complete Writing Portfolio

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**Third Year**

**First Term**

- Adver 380 or Bdcest 360 3
- B Law 210 or Dec S 360 3
- Bdcest 350 3
- Bdcest 481 3
- Biological Sciences [B] (GER) 4

**Second Term**

- 300-400-level Emphasis Elective 3
- Bdcest 350 3
- Upper-division Core 3

---

Footnotes

1 Students must take one year of foreign language if two years of a foreign language was not taken at the high school level.
2 Upper-division core: Com 420, 440, 450, 470, ComSt 324, 385, 401, 485, 488.
3 Upper-division core: Bdcest 481, ComSt 321, 409, 410, 420, 440, 450, 460, 470, 471, 481, ComSt 324, 335, 385, 401, 421, 435, 485, 488, Jour 405, 425
4 For Broadcast News degree program, take Bdcest 365 [M]; for Broadcast Production, take Bdcest 355.
5 For Broadcast News degree program, take Bdcest 465 [M]; for Broadcast Production, take Bdcest 455.
6 Any seminar numbered 475 in communication.
## Third Year

### First Term  
- **Degree Core**  
- **Foreign Language, if necessary, or Elective**  
- **Emphasis Electives**  

### Second Term  
- **300-400 level Emphasis Electives**  
- **Biological Sciences [B] (GER)**  
- **Degree Core**  
- **Upper-division Core**

### Fourth Year

### First Term  
- **300-400 level Emphasis Elective**  
- **Internship/Enrichment**  
- **Upper-division Core**  
- **Elective**

### Second Term  
- **Degree Core**  
- **Foreign Language, if necessary, or Elective**  
- **Seminar [M]**  
- **Tier III Course [T] (GER)**

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### COMMUNICATION - GENERAL OPTION  
**120 HOURS**

#### First Year

##### First Term  
- **Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)**
- **Com 101 [S] (GER)**  
- **Engl 101 [W] (GER)**  
- **GenEd 110 [A] (GER)**  
- **Social Sciences [S,K] (GER)**

##### Second Term  
- **Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)**  
- **Arts & Humanities [H,G] or Social Sciences [S,K] (GER)**  
- **ComSt 102 [C] (GER) or Com 101**  
- **GenEd 111 [A] (GER)**  
- **Science Elective (GER)**

#### Second Year

##### First Term  
- **Com 245**  
- **Com 265**  
- **Emphasis Elective**  
- **Math Proficiency [N] (GER)**  
- **Elective**

##### Second Term  
- **Com 295**

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### COMMUNICATION - JOURNALISM OPTION  
**120 HOURS**

#### First Year

##### First Term  
- **Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)**
- **Com 101 [S] (GER)**  
- **Engl 101 [W] (GER)**  
- **GenEd 110 [A] (GER)**

##### Second Term  
- **Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)**  
- **Arts & Humanities [H,G] or Social Sciences [S,K] (GER)**  
- **ComSt 102 [C] (GER)**  
- **GenEd 111 [A] (GER)**  
- **Science Elective (GER)**

#### Second Year

##### First Term  
- **Com 245**  
- **Com 265**  
- **Emphasis Elective**  
- **Intercultural Studies [I,G,K] (GER)**  
- **Math Proficiency [N] (GER)**

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### COMMUNICATION - ORGANIZATIONAL OPTION  
**120 HOURS**

#### First Year

##### First Term  
- **Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)**
- **Com 101 [S] (GER)**  
- **Engl 101 [W] (GER)**  
- **GenEd 110 [A] (GER)**

##### Second Term  
- **Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)**  
- **Arts & Humanities [H,G] or Social Sciences [S,K] (GER)**  
- **ComSt 102 [C] (GER)**  
- **GenEd 111 [A] (GER)**

#### Second Year

##### First Term  
- **Com 245**  
- **Com 265**  
- **Emphasis Elective**  
- **Intercultural Studies [I,G,K] (GER)**  
- **Math Proficiency [N] (GER)**
### Second Term | Hours |
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
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<tr>
<td>Com 295</td>
<td>3</td>
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<tr>
<td>ComSt 321</td>
<td>3</td>
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<tr>
<td>Physical Sciences [P] (GER)</td>
<td>4</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
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<tr>
<td>Apply for Certification</td>
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<tr>
<td>Complete Writing Portfolio</td>
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</table>

**Footnotes**

1 18 credits in another department, 9 of which are 300-400-level.

2 Students must take one year of foreign language if two years of a foreign language was not taken at the high school level.


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### Fourth Year

**First Term**

<table>
<thead>
<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>300-400-level Emphasis Electives</td>
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<tr>
<td>ComSt 475 [M]</td>
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<tr>
<td>ComSt 485</td>
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<tr>
<td>Upper-division Core</td>
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<tr>
<td>Elective</td>
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**Second Term**

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<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>Foreign Language, if necessary, or Elective</td>
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<tr>
<td>Internship or Com Electives (for enrichment)</td>
</tr>
<tr>
<td>Tier III Course [T] (GER)</td>
</tr>
</tbody>
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### Minors

**Communication**

The minor in communication requires a minimum of 18 hours, 9 of which must be at the 300-400 level and selected from the following courses: Adver 380, Bdcst 481, Com 101, 245, 295*, 321, 340, 403, 409, 410, 415, 420, 440, 450, 460, 470, 471, 481, ComSt 324, 335, 385, 401, 421, 435, 485, 488, Jour 405, 425.

**ComSt 485** 3

**ComSt 475 [M]** 3

**P R 312** 3

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### Description of Courses

Enrollment in 300-400-level School of Communication courses is restricted to those students who have certified as a communication major or minor. (Exceptions include Com 231, ComSt 302, ComSt 432, ComSt 421, Com 471, and Jour 405, for students certified in a major requiring these courses.)

### Advertising Courses

**Adver**

275 *Special Topics: Study Abroad* V 1-15 May be repeated for credit. S, F grading.

380 *Advertising Principles and Practices* 3

Advertising history, theory and practice by advertising agencies and organizations.

381 *[M] Advertising Copywriting and Creative Strategies* 3

PreReq Adver 380; certified major in communications. Development of effective advertising copy and creative strategies.

382 *Media Planning* 3

PreReq Adver 380; certified major in communications. Media planning theories, strategies, and practices.

475 *Seminar in Advertising* 3

May be repeated for credit; cumulative maximum 9 hours. PreReq certified major in communications.

480 *Advertising Agency Operation and Campaigns* 3

PreReq Adver 380; Adver 381; Adver 382; certified major in communications. Principles and functions of advertising management: campaign planning, execution, presentation, and evaluation.

483 *Advertising Research* 3

PreReq Adver 380; Adver 381; Adver 382; Mktg 360; certified major in communications. Professional research practices in advertising.

484 *Special Topics: Study Abroad* V 1-15 May be repeated for credit. S, F grading.

495 *Advertising Professional Internship* 2

(0-6) to 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. PreReq Adver 381 or 382; Mktg 360; certified major in communications; by interview only. S, F grading.

499 *Special Problems* V 1-4 May be repeated for credit. S, F grading.

581 *Advertising Psychology* 3

PreReq graduate standing. Examination of social and cognitive psychological theories which have contributed to the practice of advertising.

582 *Advertising Management* 3

PreReq graduate standing. Case method approach to appraising market opportunities for the planning, development, implementation, and administration of advertising programs.
Broadcasting Courses

Bdcst

483 Special Topics: Study Abroad 1 By interview only. Orientation to broadcast equipment; audio, studio television, and field television, as applied to various functions. S, F grading.

275 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

350 Introduction to Telecommunications 3 (2-3) Prereq Com 295; certified major in communications. Fundamentals of the history, structure, economics and operations of broadcasting and cable.

355 Studio TV Production 3 (1-6) Prereq Bdcst 350; certified major in communications.

360 Writing for Television 3 (2-3) Prereq certified major in communications. Theory and practice of writing scripts: analysis of dramatic, comedic, commercial, documentary scripts; writing scripts for each genre.


455 Field TV Production 3 (1-6) May be repeated for credit; cumulative maximum 6 hours. Prereq Bdcst 350; Bdcst 355; certified major in communications. Field production; editing; advanced studio production.

465 [M] Broadcast News Writing, Reporting, and Editing 3 (2-3) May be repeated for credit; cumulative maximum 6 hours. Prereq Bdcst 365; certified major in communications. Writing, reporting, and editing broadcast news; development and production of documentaries.

466 Advanced Reporting and Documentary 3 (2-3) Prereq Bdcst 465 or 455; certified major in communications. Advanced writing and reporting for radio or television; feature-length reporting on news and public affairs topics; documentaries.

475 [M] Seminar in Broadcasting 3 Prereq certified major in communications; senior or graduate standing. May be repeated for credit; cumulative maximum 9 hours.

481 Broadcast Management 3 Prereq certified major in communications; senior standing.

483 Special Topics: Study Abroad V 1-15 May be repeated for credit. Prereq certified major in communications. S, F grading.

495 Broadcasting Professional Internship 2 (0-6) to 12 (0-36) Prereq Bdcst 365, 455, or 465; certified major in communications; by interview only. May be repeated for credit; cumulative maximum 12 hours. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Communication Courses

Com


138 freshman Special Topics 1 May be repeated for credit; cumulative maximum 2 hours. Introduces new students to individual faculty research interests and helps students link personal interests to academic majors. S, F grading.

245 Language and Human Behavior 3 Prereq sophomore standing. Theories of language as it influences human behavior in meaning production, problem solving and construction of social reality.

260 Introduction to Communication Technology 3 Prereq sophomore standing. Introduction to various communication technologies including web page development, video editing, digital, converging technologies and privacy issues.

265 The Murrow Legacy 3 Prereq sophomore standing. Foundational and contemporary readings and media presentations highlighting Edward R. Murrow's career including ethics, integrity, democracy, social responsibility, intercultural/international communication and understanding.

275 Special Topics: Study Abroad V 1-15 May be repeated for credit. Associate Director/Undergrad. Studies approval. S, F grading.

295 Media Writing 3 (2-3) Prereq Com 101; application. Writing for the media; journalistic and persuasive writing. (The typing proficiency may be waived on an individual basis for otherwise qualified students.)

321 [I] Intercultural Communication 3 Prereq certified in a major. Culture and communication.

409 Quantitative Research 3 Prereq certified major in communications. Measurement, questionnaire construction, sampling, data collection techniques, analysis and hypothesis testing in communication research.

410 History of Mass Communications 3 Prereq certified major in communications; junior standing or graduate student. For seniors and graduate students. Credit not granted for both Com 410 and 510.

415 Law of Mass Communications 3 Prereq certified major in communications; junior standing. Credit not granted for both Com 415 and 515.

420 New Communication Technologies 3 Prereq certified major in communications; junior standing. New communication technologies, their impact on communication processes, access, regulation, and communication in organization/professional contexts. Credit not granted for both Com 420 and 520.

440 Media Ethics 3 Prereq certified major in communications; junior standing. Foundations and frameworks of media ethics; case studies in assessing media performance. Credit not granted for both Com 440 and 540.

460 Mass Media Criticism 3 Prereq certified major in communications; junior standing. Theoretical and philosophical basis for critical analysis of mass communication. Credit not granted for both Com 460 and 560.

464 Gender and the Media 3 Prereq Com 101 or W St 200; certified major in communications. How news and entertainment media shape and reinforce societal expectations of gender; consideration of race, age, class, and sexual orientation.

470 Mass Communications Theories and Theory Construction 3 Prereq certified major in communications; senior standing. Theories of mass communication and the process of theory construction.

471 [I,D] Stereotypes and The Media 3 Prereq completion of one Tier I course; three Tier II courses. Examines portrayals of social groups in the media and the impact portrayals have on perceptions, expectations, and aspirations of members of portrayed groups and nonmembers.

483 Special Topics: Study Abroad V 1-15 May be repeated for credit. Prereq by interview only. S, F grading.

495 Communication Professional Internship V 2 (0-6) to 12 (0-36) Prereq by interview only. May be repeated for credit; cumulative maximum 12 hours. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. Prereq by interview only. S, F grading.

500 Introduction to Graduate Study 1 Prereq Graduate Standing. Permission of Instructor. Introduces graduate students to the pragmatics of graduate education and to research being conducted in the School of Communication. S, F grading.

501 Theory Building in Communication 3 Prereq graduate standing. Relationship of research to theory development; evaluation of current theory and research; planning and executing research within specified theoretical frameworks.

504 Instructional Practicum 1 Prereq graduate standing; by interview only. May be repeated for credit; cumulative maximum 4 hours. S, F grading.

506 Persuasion and Social Influence 3 Prereq graduate standing. Theories, concepts strategies and processes of persuasion and social influence.

507 Communication Ethics Seminar 3 Prereq graduate standing. Topics in communication ethics.

509 Quantitative Research 3 Prereq graduate standing. Introduction to quantitative research in communication; hypothesis development, testing; basic statistics, interpretation; field surveys, laboratory and field experiments, content analysis.
510 History of Mass Communications 3 Graduate-level counterpart of Com 410; additional requirements. Credit not granted for both Com 410 and 510.

515 Law of Mass Communications 3 Graduate-level counterpart of Com 415; additional requirements. Credit not granted for both Com 415 and 515.

517 Health Communication and Social Development 3 Prereq graduate standing. Explores and tests role of mediated communication in the causes of and solutions for health problems, particularly among young people.

520 New Communication Technologies 3 Graduate-level counterpart of Com 420; additional requirements. Credit not granted for both Com 420 and 520.

521 Foundational Perspectives in Intercultural Communication 3 Prereq graduate standing. Overview of three current foundational research perspectives in intercultural communication: functionalist (post-positivist), interpretive and critical.

522 Theoretical Perspectives on Intercultural Communication 3 Prereq graduate standing. Advanced readings in intercultural communication theory and methods; paradigms in current theorizing.

524 Intercultural/International Communication and Social Change 3 Prereq graduate standing. Application of communication theory, research and technologies aimed at fostering social change in intercultural and international contexts.

525 Rhetorical Theory 3 Prereq graduate standing. Major theories from classical to contemporary; analysis of symbolic action in public, political discourse.

526 Current Topics in Intercultural Communication 3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Topics in current intercultural communication research.

535 Organizational Communication Theory 3 Prereq graduate standing. Traditional and emerging theories in organizational communication.

537 Organization and Society 3 Prereq graduate standing. Historical foundations, theoretical developments, contemporary issues and practical implications of communicative processes of organizations within society.

538 Seminar in Training and Development 3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Instructional aspects of training and consultation in organizational communication; team-building, presentational skills, conflict resolution, assessment leadership, group dynamics.

540 Media Ethics 3 Prereq by interview only. Graduate-level counterpart of Com 440; additional requirements. Credit not granted for both Com 440 and 540.

541 Readers Theatre for the Classroom 3 Prereq certified major in communications. Principles of literature selection, script writing and staging of readers theatre for classroom.

542 Current Issues in Media Processes and Effects 3 Prereq graduate standing. Current issues in media processes and effects.

560 Mass Media Criticism 3 Prereq by interview only. Graduate-level counterpart of Com 460; additional requirements. Credit not granted for both Com 460 and 560.

570 Communication Theory 3 Prereq graduate standing. Relevant theories and research from mass and interpersonal communication.

571 Theoretical Perspectives on Media and Society 3 Prereq graduate standing. Theories explaining the social and cultural environments of communication processes emphasizing in mass communication.

572 Mass Media, Social Control, and Social Change 3 Prereq graduate standing. Study of the forces that influence the media's role as an agent of social control or social change.

573 Media and Public Discourse 3 Prereq graduate standing. Historical and contemporary concepts, questions and dynamics constituting the role of media and discourse among various publics.

580 Topics in Communication 3 May be repeated for credit; cumulative maximum 12 hours. Prereq graduate standing; by interview only. Contemporary, specialized, or technical topics in communication.

585 Interpersonal and Small Group Communication 3 Prereq graduate standing. Theory and research in interpersonal and small group communication.

591 Qualitative Research Methods 3 Prereq graduate standing. Historical, textual, and legal methodologies for theory-based evaluative and discourse studies in communication.

599 Seminar in Communication 3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing; by interview only. Special topics in rhetoric, communication, and public address.

600 Special Projects or Independent Study 3 Variable credit. Prereq by interview only. S, F grading.

700 Master's Research, Thesis, and/or Examination 3 Variable credit. Prereq by interview only. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination 3 Variable credit. Prereq by interview only. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination 3 Variable credit. Prereq by interview only. S, F grading.

Communication Studies Courses

ComSt 102 [C] Public Speaking: Theory, Models, and Practice 3 An introduction to the theory and practice of speaking in formal settings.

185 Principles of Interpersonal Communication 3 Theory and practice of interpersonal communication; understanding and applying intrapersonal information in interpersonal settings.

235 [C] Principles of Group Communication 3 Theoretical and practical aspects of communication in groups; classroom exercises and films demonstrate principles and develop skills.

275 Special Topics: Study Abroad V 1-15 May be repeated for credit. Prereq by interview only. S, F grading.

302 [C] Advanced Public Speaking 3 Prereq ComSt 102; certified in a major. Advanced principles of public speaking and their practical implementation for effective communication.

324 [C, M] Argumentation 3 Prereq ComSt 102; certified in a major. Theory, analysis and application of written and oral arguments in everyday use.

335 Organizational Communication 3 Prereq certified major in communications. Communication theory and organizational functions; communication influences on organizational behavior, managerial effectiveness, corporate culture, organizational power and politics.

351 Broadcast Performance/Interpretation 3 Prereq certified major in communications. Voice and diction, interpretation of copy for broadcast.

401 Persuasion 3 Prereq certified major in communications. Theories of persuasion and social action; study of strategies and techniques for the persuasive use of language and other symbols.

421 [T] Intercultural Processes in Global Contexts 3 Prereq completion of one Tier I course; three Tier II courses. Global cultural changes and their influences on intercultural communication including perspectives and readings from different disciplines.

424 [M] Criticism of Public Address 3 Prereq certified major in communications. Criticism of Public Address 3 Critical analysis of public messages; applications of traditional and contemporary approaches to textual analysis, from classical to postmodern theory. Credit not granted for both ComSt 424 and Com 524.

435 Advanced Organizational Communication 3 Prereq ComSt 335; certified major in communications. Advanced concepts, models and methods for in-depth analysis of contemporary organizations.
475 Seminar in Communication Studies 3
Prereg: certified major in communications; senior or graduate standing. May be repeated for credit; cumulative maximum 9 hours.

483 Special Topics: Study Abroad V 1-15 May be repeated for credit. Prereg: certified major in communications. S, F grading.

485 Organizational Consulting 3
Develop and practice consulting skills relevant to a practical situation and apply organizational literature to a client.

488 Structure of Conversation 3
Prereg: Com 245; certified major in communications. Symbol systems and their interrelation in sequential organization in everyday communication.

495 Communication Studies Professional Internship V 2 (0-6) to 12 (0-36) Prereg: by interview only. May be repeated for credit; cumulative maximum 12 hours. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. Prereg: certified major in communications; by interview only. S, F grading.

Journalism Courses

275 Special Topics: Study Abroad V 1-15 May be repeated for credit. Prereg: by interview only. S, F grading.

305 [M] Reporting 3
Prereg: Com 295; certified major in communications. Basic copy editing and design skills for print media.

330 News Editing 3 (2-3) Prereg: Jour 305; certified major in communications. Basic copy editing and design skills for print media.

341 Advanced Editing 3 (2-3) Prereg: Adver 381, Jour 330, or P R 313; certified major in communications. Advanced copy editing and design techniques; emphasis on visual communication.

475 Seminar in Journalism 3
Prereg: certified major in communications. May be repeated for credit; cumulative maximum 9 hours.

481 Newspaper Management 3
Prereg: Jour 305, Jour 330, or Jour 425; certified major in communications.

483 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

495 Communication Studies Professional Internship V 2 (0-6) to 12 (0-36) Prereg: Jour 305; Jour 330; Jour 425; by interview only. May be repeated for credit; cumulative maximum 12 hours. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Public Relations Courses

P R

275 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

312 Principles of Public Relations 3
Prereg: Com 295; certified major in communications. Principles, theories, methods and objectives of public relations; public relations problems and practices.

313 [M] Public Relations Techniques and Media Usage 3 (2-3) Prereg: Com 295; Jour 305; P R 312; certified major in communications. Practical applications of public relations theory and techniques with emphasis on writing and media use.

412 Public Relations Management and Campaign Design 3
Prereg: Com 409, P R 312, Jour 305 or P R 313; certified major in communications. Application of public relations principles, management, persuasion theory and research methods to public relations issues.

511 Public Relations Theory and Application 3
Theory and practice of public relations; its function in organizations and its role in society.

Description of Courses

Department of Community and Rural Sociology

www.crs.wsu.edu
Wilson-Short 23
509-335-8623


The Department of Community and Rural Sociology, which has a strong programmatic emphasis in the area of Human Dimensions of Sustainability, offers courses and a minor in the area of community studies. These courses develop student knowledge of how community-based social structures influence human behavior, how and why community development efforts succeed or fail, how the globalization of the world's economic, political, and social systems are affecting human quality of life, the relationship between communities and their agricultural and natural resource base, and how community conflicts may be resolved successfully. The courses and the minor help prepare students for effectively living in communities and for working to influence sustainable community development and change.

Minors

Community Studies

The department offers a minor in community studies. The minor requires 18 hours, 3 of which must come from CRS 334, 335, 336, 391 (on approval); 3 hours from Anth/Soc 418, H D 410, or CRS 423, 431, 435, 441, 491 or 499 (on approval). The remaining 12 hours may come from any of the above courses or from: Arch 202; Econ 355; ES/PR 335, 486; H D 205; NATRS 312, 438; Pol S 336, 416; Soc 301, 331, 332, 424. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Please contact the department at 509-335-8623 or rajussaune@wsu.edu for more information.

Minors

Community and Rural Sociology Courses

CRS

275 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

334 [S] Principles of Community Development 3
Prereg: 3 credits S or K GER; sophomore standing. Factors influencing how communities grow and decline and the ways in which social interventions influence these outcomes.

335 [K] Cross-Cultural Perspectives on Community 3
Prereg: 3 credits S or K GER. Comparative analysis of US and non-US communities, their sustainability, and their role in past and future human development.

336 [S] Agriculture, Environment and Community 3
Prereg: 3 credits S or K GER; sophomore standing. Examines interdependencies between farming/ranching, the natural environment and human communities including perspectives on sustainable agriculture.

391 Special Topics V 1-3 May be repeated for credit; cumulative maximum 3 hours. Prereg: 3 credits S or K GER; sophomore standing. Topics in rural sociology or community studies.

416 (404) Sustainable Small Farming and Ranching 3
Same as AFS 416.

417 (403) Agricultural Entrepreneurship 3
Same as AFS 417.
Community and Rural Sociology

423 Fundamentals of Participatory Research
3 Prereq 6 credits S or K GER; sophomore standing. Principles/methods of involving community/interest group members in knowledge generation to understand local issues while building local capacity. Credit not granted for both CRS 423 and 523.

431 [T,D] The Demographics of American Diversity
3 Prereq junior or senior standing; completion of all GERs. How trends in diversity in American society are changing over time; the demographic forces underlying these trends and debates on these.

435 Resolving Environmental Conflicts
4 (3-3) Prereq 6 credits S or K GER; junior standing. Introduction to environmental conflict resolution via readings, discussions, simulation role plays and required papers; emphasis on interest-based approaches. Credit not granted for both CRS 435 and 535.

441 Fundamentals of Participatory Research Systems
3 Prereq graduate standing. Graduate-level counterpart of CRS 441; additional requirements. Credit not granted for both CRS 423 and 523.

445 Field Analysis of Sustainable Food Systems
3 Same as AFS 445.

480 Special Topics: Study Abroad
V 1-15 May be repeated for credit. S, F grading.

491 Advanced Special Topics
V 1-3 May be repeated for credit; cumulative maximum 3 hours. Prereq 6 credits S or K GER. Advanced topics in rural sociology or community studies.

499 Special Problems
V 1-3 May be repeated for credit. S, F grading.

523 Fundamentals of Participatory Research
3 Prereq graduate standing. Graduate-level counterpart of CRS 423; additional requirements. Credit not granted for both CRS 423 and 523.

535 Resolving Environmental Conflicts
4 (3-3) Prereq graduate standing. Graduate-level counterpart of CRS 435; additional requirements. Credit not granted for both CRS 435 and 535.

541 Local Impacts of Global Commodity Systems
3 Prereq graduate standing. Graduate-level counterpart of CRS 441; additional requirements. Credit not granted for both CRS 441 and 541.

591 Graduate Special Topics
V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Advanced topics in rural sociology or community studies.

600 Special Projects/Independent Study
Variable credit. S, F grading.

Department of Comparative Ethnic Studies

libarts.wsu.edu/ces
Wilson Hall 111
509-335-2605

Chair and Associate Professor, C.R. King; Professor, Y. Flores Niemann; Associate Professors, M. Bloodworth-Lugo, D. Leonard, R. Ong, J. Streamas; Assistant Professors, K. Christen, L. Guerrero, C. Lugo-Lugo.

Vision Statement

Comparative Ethnic Studies (CES) participants challenge the unequal distribution of power and privilege within and between ethnic and racial groups in the United States and around the world. CES provides the knowledge and the tools to realize social justice.

Mission Statement

The Department of Comparative Ethnic Studies (CES) offers a multidisciplinary, comparative, and, ultimately, transformative approach to the study of the psycho-social, cultural, political, historical, and economic expressions and experiences of racialized groups in the United States and interconnected global communities. Through their excellence in teaching, research, and community service, CES scholars facilitate understanding of how the social constructions of race impact the fabric of our historical and contemporary world. While preparing community members to actively and critically engage in their civic responsibilities, especially with respect to social justice.

Application of Comparative Ethnic Studies

CES offers an undergraduate major and minor. Some students choose to double-major in CES. A major in CES prepares students to apply their education in any number of occupations including the areas of business, service, education, employment abroad, and politics. The curriculum engages students in thinking and communicating critically and analytically, thereby preparing them to continue learning in a rapidly changing technological and global world. The CES curriculum is also excellent preparation for advanced educational programs, including law, counseling, and medicine. Most importantly, CES prepares students to live and work in an increasingly global and diverse world, and to critically and actively engage in their civic responsibilities.

Role of CES within Washington State University

The Department of Comparative Ethnic Studies (CES) has a distinct function within the larger structure of Washington State University. It is responsible for providing the critical understanding of racialized communities. CES fosters an in-depth understanding of the complexities of the United States cultures and its interactions with global perspectives, while examining social justice concerns and movements. The teaching, research, and services components of CES examine the scholarly aspects of social justice, with an eye toward sophisticated awareness, comprehension, communication, activism, and transformation. The Department of CES facilitates students' and the larger campus community's understanding of today's racial problems and to serve as a consultant for university and community concerns related to race.

Overarching Learning Goals

At the completion of their baccalaureate degree studies in the Department of Comparative Ethnic Studies, students will have the skills to:

1. Be conversant in the field of Ethnic Studies. Understand and articulate its historical development, key concepts, theories, methods, central debates, problems, and possibilities in an increasingly global context.
2. Critique Eurocentrism and understand prevailing Eurocentric formulations on race and ethnicity as they have contributed to social conflict, economic issues, and political inequalities.
3. Advocate for social justice for Communities of Color in the Pacific Northwest, especially, with respect to tribal nations and recent immigrants. Show an understanding of the regional articulations of race, gender, sexuality, class, and ability.
4. Critically and responsibly engage in their civic responsibility as global citizens with an enhanced appreciation of the processes and consequences of colonization, empire, and of nationalism in the US and its consequences to other groups across the globe.
5. Reflect on their experiences in a complex, unequal, and often contradictory world, while understanding and articulating their privileges and the implication of their race/ethnicity and socio-economic status.
6. Think critically about the social constructions of race over time, having a broad understanding about the relationship between race and institutional structures; individual and collective identities; ideologies and images; individual and institutional/structural racism; and issues of power, appropriation, and essentialism.
7. Appreciate the histories, implications, and possibilities of marginalized and racialized people.
8. Demonstrate knowledge of major developments in ethnic formations and relations as they shape U.S. culture.
9. Be literate about popular culture, demonstrating the ability to decode racial meanings of media texts, films, television, music, sports and other forms utilized for the deployment of race.
10. Engage the world around them critically, defining and challenging normative views and values, especially with respect to whiteness, maleness, and heterosexuality as normative systems.
11. Effect and understand the processes of resistance and social change; conceptualize and articulate the history and processes of resistance to systems of oppression; challenge the paradigmatic assumptions of progress; and understand the connection between social change and struggle.
12. Apply curricular knowledge by serving in internships, which demonstrate preparation for careers and/or educational pursuits in graduate and professional schools.
Ces Programs and Activities

1. Internship
In an effort to institutionalize our commitment to applied education, with respect to social justice, foster stronger relations with the community at large, and enhance our desire in breaking down barriers between the campus and community, Ces launched an internship program in fall 2004. This program allows students to apply their education through service in an organization most suited to their interests. Through collaboration with community organizations, Ces will be able to better prepare students for the application of their skills outside the university and the critical engagement of their civic responsibility.

2. Ces Film Series
Pending available funding, the CES film series offers non-mainstream films and documentaries that demonstrate the constructs, theories, and general content of the CES coursework. CES scholars introduce each film, providing critical background on the context of the film, and then facilitate disussion following the film.

3. Ces Speaker Series
Pending available funding, the CES Speaker Series brings internationally recognized individuals to WSU. It promotes the voices and perspectives of academics and artists from marginalized and racialized groups. At the same time, it affords scholars in Ethnic Studies a broad audience. The overarching goals are education, critical reflection, and intellectual stimulation for students, faculty, and the WSU community member.

4. CES Encuentros.
The Encuentros Speaker Series began in the Spring of 1997 as a way of providing mentorship for Chicana/o and Latina/o graduate students. These students compose one of the most underrepresented groups in academia. The series also serves to educate the WSU community about the work of our graduate scholars in Ethnic Studies a broad audience. The overarching goals are education, critical reflection, and intellectual stimulation for students, faculty, and the WSU community member.

5. CES Faculty Colloquia Series
CES scholars share their most recent work with the WSU audience, facilitating discussion after their presentations.

6. Structural Student Advising
Advising is central to the mission of CES. All faculty in CES guide students through the nuances of registration, often serving as mentors for our minors and majors. All faculty engage in advisor training and meet to discuss procedures and problems. Currently, the faculty is working to develop an assessment tool that will further facilitate student advising.

7. Ces Website
The CES Website is a source of information about the department courses, faculty, and activities/events. It is also an important resource for issues/concerns and current topics related to the CES program. It provides numerous links to informative Websites and databases.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

Comparative Ethnic Studies (120 Hours)

Students majoring in Comparative Ethnic Studies complete 39 hours in CES, as outlined below, with at least one/half of all CES courses taken at the 300-400 level.

First Year

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<thead>
<tr>
<th>Term</th>
<th>Hours</th>
<th>Courses</th>
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<tr>
<td>First Term</td>
<td>CES 201</td>
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<td>Engl 101 [W] (GER)</td>
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<td>GenEd 110 [A] (GER)</td>
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Second Term

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<tr>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
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Second Year

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<td>CES Cluster II</td>
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<td>Communication Proficiency [C,W] (GER)</td>
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<td>Math Proficiency [N] (GER)</td>
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Third Term

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<tr>
<td>CES Cluster I or II</td>
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<tr>
<td>Intercultural Studies [I,L,K] (GER)</td>
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<td>Elective</td>
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<td>Complete Writing Portfolio</td>
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Fourth Year

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<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,L,K], or Social Sciences [S,K] (GER)</td>
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<td>CES 498</td>
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<tr>
<td>Electives</td>
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Notes

¹ Please see CES Website, libarts.wsu.edu/ces, for cluster I and II course list.

Minors

African Studies

The African Studies minor provides a broad interdisciplinary program designed to present the unity and diversity of African peoples, economies, and cultures. Students minoring in African studies are expected to fulfill all of the university’s requirements for graduation, as well as 18 hours of CES courses, with 9 hours in the African Studies Minor core sequence. At least half of the 18 hours must be at the 300-400 level taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

Core courses (9 hours): Anth 307, Ces 227, 439. Electives (9 hours): Three of the following: CES 131, 235, 331, Pol S 460. African Languages: Students may take up to 6 hours of an African language to fulfill elective requirements by making special arrangements with Independent Study Program.

Comparative Ethnic Studies

Students may complete a minor in Comparative Ethnic Studies (CES). For the minor, students are expected to fulfill all the university’s requirements for graduation, CES 201, as well as 18 hours of coursework in CES, nine hours of which must be 300-400-level courses taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

Description of Courses

Comparative Ethnic Studies Courses

Ces

101 [I] Introduction to Comparative Ethnic Studies 3 Comparative issues in Asian American, African American, Chicana/o, and Native American cultures in the United States.

111 [S,D] Introduction to Asian Pacific American Studies 3 Examination of the social, political, economic, and cultural experiences of Asian/Pacific Americans in the historical and contemporary period.

131 [S,D] Introduction to Black Studies 3 An introduction to general knowledge concerning African Americans in the US.

151 [G] Introduction to Chicano/Latino Studies 3 Examination of the history, culture, political and economic status of Chicano/as and Latino/as in the US.
255 [S,D] Chicana/o History 3 The historical development of the Chicano/a community in relation to the dynamics of race relations, class structure, ethnic identity, gender, and sexuality in American society from 1521 to the 20th century.

260 [S,D] Race and Racism in US Popular Culture 3 Examines images, ideologies, and identities; introduces key concepts and methods; focuses on race, gender, sexuality and class.


300 [S,M] Intersections of Race, Class, Gender and Sexuality 3 Prereq CES 101, Soc 101, or W St 200. Same as W St 300.


302 [S,D] Social Psychology of Prejudice 3 Causes and nature of prejudice from social, psychological, and cultural theoretical perspectives.

303 [M] Research Methods in Ethnic Studies 3 Quantitative, qualitative, and/or literary research methods and strategies particular to the study of race, ethnicity, and culture.


305 [S,D] Contemporary Masculinity and Men's Issues 3 Same as W St 302.

308 [M] Cultural Politics of Sport 3 A critical examination of US sports through class, race, gender, sexuality, nationalism and criminality.

309 Queer Identities in Contemporary Cultures 3 Same as W St 369.

311 Asian Diaspora Across the Americas 3 Prereq CES 101, 111 or 211 Migration of Asian populations across the Pacific, North and South America and the Caribbean.

313 [G] Asian Pacific American Literature 3 Asian American fiction, drama, poetry, and other arts, 1900 to present; impact of Asian Pacific American culture and experience upon these works.

314 [M] Topics in Asian Pacific American Literature 3 May be repeated for credit; cumulative maximum 6 hours. Trends, themes, major writers.


316 [G] South Asian Film 3 (2-3) Same as Engl 316.

325 [I] Traveling Cultures: Tourism in Global Perspective 3 Social relations and cultural practices central to tourism with examples from around the world.

330 From Malcolm X to the Black Panthers 3 Prereq CES 101 or 201. Complex understanding of the history of black politics in the 1960's.
Comparative Ethnic Studies

372 [S,D] Native American Women in Traditional and Contemporary Societies 3 Prereq one of Anth 101, 214, CES 101, 171, or W St 200. Exploration of roles and activities of women in Native American societies; how traditional gender roles have developed and changed.

373 [G,M] Native American Literature 3 Native American literature, by and about the original inhabitants, image and counter-image, with emphasis on the 20th century.

375 [K] North American Indian History, Precontact to Present 3 Same as Hist 308.

376 [K] America Before Columbus 3 Prereq Anth 101 or GenEd 110. Same as Anth 331.

377 [K] Native Peoples of North America 3 Same as Anth 320.

378 [S,D] Contemporary Native Peoples of the Americas 3 Prereq Anth 101 or CES 171. Same as Anth 327.

379 [H,D] Native Americans in Film 3 Critical examination of films and videos featuring American Indians; traces the history of the Indian as subject of films and as filmmaker.

380 [S,D] Immigration and Citizenship in the Global Economy 3 Examination of past and current notions of immigration and citizenship in North American, Asian, and European countries as defined by government officials, political organizations, community groups, and popular culture.

398 [H,D] History of Women in American West 3 Same as Hist 398.

401 Seminar in Culture and Power 3 Complex power relations that develop among competing local, regional, national, and global culture(s).

403 [T,D] Cultural Issues in Psychology 3 Prereq 3 hours cultural psychology; completion of one Tier I and three Tier II courses. Multidisciplinary analyses of the relationship between social-ecological and political contexts and individual and collective psychology.

404 [T,D] Stereotypes and The Media 3 Prereq completion of one Tier I and three Tier II courses. Same as ComSt 471.

405 [T] Cultural Criticism and Theory 3 Prereq completion of one Tier I and three Tier II courses. Major critiques and theories of colonialist and imperialist formations of culture.

406 Philosophy and Race 3 Prereq 3 hours in Phil or CES 201. Examination of race within western philosophy including work of philosophers of color and analysis of the category “race”. Cooperative course taught by WSU, open to UI students (Phil 406).

407 Race, Gender and the Prison Industrial Complex 3 Prereq CES 131 or 201. Race, gender and natality and how they affect the organization and maintenance of the prison industrial complex.

408 [T,D] Introduction to Critical Race Feminism 3 Same as W St 408.

411 [T,D] Asian Pacific American Women 3 Prereq CES or W St course; completion of one Tier I and three Tier II courses. Rec CES 101 or W St 200. CES 101 or W St 200 Intersection of ethnicity, race, class, gender and sexuality in the lives of Asian Pacific American women.

412 [T,D] Asian Pacific Americans and Popular Culture 3 Prereq CES 101 or 111. Examines the racial politics that have developed around the representation of Asian Pacific Americans in US popular culture.

415 United States, 1945-Present 3 Same as Hist 419.

419 History of the Pacific Northwest 3 Same as Hist 422.

421 [T] Intercultural Processes in Global Contexts 3 Prereq completion of one Tier I and three Tier II courses. Same as ComSt 421.

425 [T] Workers Across North America 3 Prereq completion of one Tier I and three Tier II courses. International interactions between workers and labor unions in Mexico, Canada and the US.

435 [T,D] African American Women in US Society 3 Prereq completion of one Tier I and three Tier II courses; CES 101, W St 200; rec CES 131. Critical terms and models for understanding the experiences of African American women in antebellum America to the present; an interdisciplinary forum concerned with the national experience of the African American woman experience.

436 Black Masculinities 3 Prereq CES 131 or W St 300. Historical, political and cultural constructions of images of black manhood and the effects on black male subjectivity.

440 [T,D] Social Justice and American Culture 3 Prereq completion of one Tier I and three Tier II courses. Social justice issues in relation to diverse American cultures in both an historical and contemporary context.

442 Nation, Ethnicity, and Modernity 3 Prereq CES 244 or 301. Relationship between modernity and nation-making in relation to dominant constructions of race and ethnicity and histories of colonialism.

444 [T] White Power Movements and Ideologies 3 Prereq completion of one Tier I and three Tier II courses. Critical assessment of white supremacist and nationalist movements and ideologies around the globe.

446 Racism and Anti-Racism in Global Context 3 Prereq CES 101 or 201. Theory and practice of anti-racism; history and scope; strategies to transform racist systems.

453 [T,D] Health Issues for Chicanos/as 3 Prereq completion of one Tier I and three Tier II courses. Examination of the mental and physical health of Chicanas/os from an interdisciplinary perspective.

454 [T] La Chicana in US Society 3 Prereq junior standing, completion of one Tier I and three Tier II courses. Intersections of race, class, gender and sexual orientation in the experience of a marginalized group - Chicanas.

457 [T,D] Chicana/o and Latina/o Psychology 3 Prereq Psych 105, EdPsy 401, H D 101, Soc 101, or permission of instructor; completion of one Tier I and three Tier II courses. Examination of the current psychological research and literature relevant to the psychological well being of Chicano/Latino populations.

465 [T] Race, Science and Society 3 Prereq completion of one Tier I and three Tier II courses. Examination of the current research and literature relevant to the psychological well being of Chicano/Latino populations.

467 [T] American Indian Politics 3 Prereq completion of one Tier I and three Tier II courses. Issues involving indigenous ownership of natural resources within the US.

474 [T] African Politics 3 Prereq completion of one Tier I and three Tier II courses. Historical, economic, and social factors that shape contemporary African political systems and problems of nation-building.

475 [T,D] Indians of the Northwest 3 Prereq Anth 320, CES 171, 375, 377, or Hist 308; completion of one Tier I and three Tier II courses. History and ethnography of Native Americans of the Coast and Plateau; historic relationship with Europeans and Euro-Americans, and other Native Americans, Asian Americans, and Chicanas/os.

485 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

486 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

487 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

488 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

491 Theories of Racism and Ethnic Conflicts 3 Prereq CES 101. Provides general knowledge of the history of racist ideas and the social, political, and cultural contexts underlying ethnic conflicts.

492 Advanced Topics in Ethnic Studies 3 May be repeated for credit; cumulative maximum 9 hours; total hours allowed for CES 492, 493, 494 is 9 hours. Prereq course in CES. A reading and discussion course that explores special topics in ethnic studies.

493 Advanced Topics in Ethnic Studies 3 May be repeated for credit; cumulative maximum 9 hours; total hours allowed for CES 492, 493, 494 is 9 hours. Prereq course in CES. A reading and discussion course that explores special topics in ethnic studies.

494 Advanced Topics in Ethnic Studies 3 May be repeated for credit; cumulative maximum 9 hours; total hours allowed for CES 492, 493, 494 is 9 hours. Prereq course in CES. A reading and discussion course that explores special topics in ethnic studies.

495 Special Topics in Comparative Ethnic Studies 3 May be repeated for credit; cumulative maximum 6 hours. Prereq course in CES. Cross-cultural studies on Asian Pacific Americans, Blacks, Chicanas/os, and Native Americans.
498 Internship in Comparative Ethnic Studies V 1-3 Prereq junior standing, 6 hours of CES core course sequence, 6 hours in CES areas of emphasis. Internship component for CES majors and minors. S, F grading.

499 Directed Independent Study V 1-4 May be repeated for credit. S, F grading.

Program in Criminal Justice

libarts.wsu.edu/crimj
Johnson Tower 801
509-335-2544


The Program in Criminal Justice, located in the Department of Political Science, offers substantive studies in criminal justice in conjunction with a liberal arts education. It prepares students for a broad range of careers in criminal justice institutions, government agencies at local, state, and federal levels, private support and welfare organizations, private security work, and domestic and international corporations, as well as for the pursuit of graduate study or law school; develops leadership qualities; and promotes the ideal of professional achievement in public service.

Criminal Justice is the interdisciplinary study of the problem of crime and of the institutions, policies and practices by which society responds to the problem of crime, as well as theories of human behavior and normative philosophies directly related to the maintenance of social order, the control of crime and the achievement of a just society. Specific courses in the program focus on social control issues and policies, substantive and procedural criminal law, the organization and workings of criminal justice institutions (police, courts, corrections, juvenile), issues relevant to groups in American society (gender, minorities), research and evaluation skills, theories of crime and delinquency, practical ethics, and the evaluation of criminal justice system institutions and their administration and management.

Students are also required to complete collateral courses on the larger political, legal, economic and social environments in which crime and the criminal justice system operate. Taught by a multi-disciplinary faculty, courses cover such areas as public administration, American public policy, constitutional law, gender and politics, and political psychology. Additional elective courses are taught by the Department of Sociology and Psychology.

We expect that graduating students will have an understanding of: 1) the causes of crime, 2) the components, processes, and programs of the criminal justice system, 3) the interconnectedness of theory, research, and practice, 4) the complexities of achieving justice in a multi-cultural society, 5) the intricacies of policy formation and implementation, and 6) the ability to understand and interpret social science research.

The course of study leads to the Bachelor of Arts in Criminal Justice, and the Master Degree and Ph.D. Degree in Criminal Justice.

Transfer Students

Students planning to transfer to Washington State University at the end of the freshman or sophomore year should follow as closely as possible the general and core course requirements set forth in the schedule of studies. If this is done, there should be no difficulty in completing the requirements for the bachelor's degree within the normal period of four years. It should also be noted that courses numbered 300 or above at Washington State University and taken at other institutions during the freshman or sophomore years will not be accepted for major requirements.

Preparation for Graduate Study

Undergraduates who are pursuing their studies at other institutions or through other curricula at this institution and who contemplate graduate work in this program will do well to elect courses similar to those required in the above schedule of studies.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete honors requirements in place of GERs.

CRIMINAL JUSTICE REQUIREMENTS
(120 HOURS)

Students who major in criminal justice must complete the 15 hour criminal justice core (Crm J 101, 201, 330, 420 and 450); 6 hours in research methods and quantitative analysis (selected from an approved list); 6 hour in criminal justice institutions courses (Crm J 365, 370, 380, 385); 9 hours in criminal justice electives; 9 hours from specified political science courses; and 3 hours in specified College of Liberal Arts electives. Students must also pass a writing proficiency test.

First Year

First Term

First Term Hours

Arts & Humanities [H,G] (GER) 3
Crm J 101 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Social Sciences [S,K] (GER) 3

Second Term

Second Term Hours

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Communication Proficiency [C,W] (GER) 3
Crm J 201 3
GenEd 111 [A] (GER) 3
Science Elective (GER) 4

Second Year

First Term Hours

Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
Biological Sciences [B] (GER) 4
Crm J 330 3
Intercultural Studies [I,G,K] (GER) 3
Math Proficiency [N] (GER) 3

Second Term

Second Term Hours

Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
Physical Sciences [P] (GER) 4
Soc 320 or Approved Statistics Course 3 or 4
Crm J Institution course 3
Pol S collateral course 3
Complete Writing Portfolio

Third Year

First Term

First Term Hours

Crm J 420 3
Crm J Electives 3
Crm J Institution course 3
Pol S collateral course 3
Quantitative methods course 3

Second Term

Second Term Hours

Crm J Electives 6
Pol S collateral course 3
Electives 6

Fourth Year

First Term

First Term Hours

Foreign Language, if necessary, or Electives 4
CLA Elective 3
Crm J 450 [M] 3
Crm J Elective 3

Second Term

Second Term Hours

Foreign Language, if necessary, or Electives 4
Tier III Course [T] (GER) 3
Electives 7

Minors

Criminal Justice

The minor in Criminal Justice requires 18 credits of course work in criminal justice, including Crm J 101, 201, 330, 420, and 450 [M]. Half of the courses must be taken at the 300-400 level and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Students wishing to minor in criminal justice should contact the Criminal Justice Program for details.

Description of Courses

Criminal Justice Courses

Crm J

101 Introduction to the Administration of Criminal Justice 3 3
Agencies and processes in the administration of criminal justice. Cooperative course taught by WSU, open to UI students (CJ 101).


275 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

276 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

277 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

278 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

311 Research Methods for Criminal Justice 3 Prereq Crm J 101. Discussion of research methods appropriate for the study of crime and criminal justice policies and institutions.

320 Criminal Law 3 Substantive criminal law; principles, functions, and limits; basic crime categories, state and national legal research materials. Cooperative course taught jointly by WSU and UI (CJ 325).


370 Introduction to Policing in America 3 Prereq Crm J 101. Development, organization, policies, and performance of the police. Cooperative course taught by WSU, open to UI students (CJ 370).

380 Criminal Courts in America 3 Prereq Crm J 101. Structure and process of the prosecution and adjudication of individuals charged with crimes in the criminal court system.

381 Crime and Justice in the Movies 3 (2-2) Prereq Crm J 101 or Pol S 101. Mass media as both refector and shaper of public attitudes and opinions about crime, criminals, law, order, and justice; using films.


400 [M] Issues in the Administration of Criminal Justice 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Crm J 101. Selected topics in criminal justice. Cooperative course taught by WSU, open to UI students (CJ 401).

403 [T] Violence Toward Women 3 Prereq Crm J 101 or W St 200; completion of one Tier I and three Tier II courses. Violence toward women and its relationship to broader social issues such as sexism and social control.


420 [M] Criminal Procedure 3 Principal court decisions concerning standards of conduct and rights in the criminal process. Cooperative course taught by WSU, open to UI students (CJ 420).

424 Community Corrections 3 Prereq Crm J 150. Theory practice and human impact of treating criminal offenders in the community.

426 Victimology and Public Policy 3 Prereq Crm J 101. Examination of victimization; policy responses to victims; victim's rights.


428 Drug and Alcohol Use and Abuse 3 Prereq Crm J 101. Drug use, impact on behavior and drug control policies.


480 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

481 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

482 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

490 Criminal Justice Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. Prereq Crm J 101. On/off-campus internship in criminal justice institutions (police, FBI, jails, law firms, etc.); written assignments and readings will be required. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

504 Quantitative Methods in Political Science and Criminal Justice 3 Prereq introductory statistics course. Same as Pol S 504.

505 Comparative Criminal Justice 3 Comparative study of crime laws and criminal justice systems in selected foreign countries. Cooperative course taught by WSU, open to UI students (CJ 505).

530 Criminal Justice: Process and Institutions 3 Processes of criminal justice in the context of the social, political, and economic environments. Cooperative course taught by WSU, open to UI students (CJ 530).

539 The Political Science Profession 1 Same as Pol S 539. S, F grading.

540 Seminar in Research Evaluation 3 Interrelationship of ideology, data, policy development, and policy implementation in public policy analysis. Cooperative course taught by WSU, open to UI students (CJ 540).

541 Seminar in Corrections 3 Prereq Stat course. Current issues related to the control, management, and sanctioning of criminal offenders. Cooperative course taught by WSU, open to UI students (CJ 541).

550 Planned Change in Criminal Justice 3 Analysis of change efforts aimed at individuals, organizations, and communities to reduce crime and improve the criminal justice system. Cooperative course taught by WSU, open to UI students (CJ 550).

555 Seminar in the Nature of Crime 3 Prereq graduate standing. Individual, situational and ecological correlates of criminal behavior; data sources and empirical research.

560 Prosecution and Adjudication 3 Prereq graduate standing. The function of courts and the behavior of prosecutors, defense attorneys and judges within the criminal justice system.

570 The Police and Society 3 Community and selected social institutional factors as related to their influence on police systems. Cooperative course taught by WSU, open to UI students (CJ 570).

572 Seminar in Comparative Policing 3 Study of the history, organization, and policies of policing systems in selected countries and of transnational policing. Cooperative course taught by WSU, open to UI students (CJ 572).

580 Women and the Criminal Justice System 3 Criminal justice system's treatment of women offenders, victims, and professionals.

590 Criminal Justice Field Practicum V 1-6 By interview only. Off-campus professional internship in selected criminal justice agencies. S, F grading.

591 Seminar in the Administration of Criminal Justice 3 May be repeated for credit; cumulative maximum 6 hours. Current issues, problems, and critical concerns within the field of administration of criminal justice. Cooperative course taught by WSU, open to UI students (CJ 591).

592 Proseminar in Administration, Justice, and Applied Policy Studies 3 Same as Pol S 542.

597 Graduate Internship V 2-12 V 2-12 May be repeated for credit; cumulative maximum 12 hours. On/off-campus internship in criminal justice institutions (police, FBI, law firms, etc.) nonprofit or public organizations; written assignments will be required. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.
Department of Crop and Soil Sciences

www.css.wsu.edu
Johnson Hall 291D
509-335-3475


The department offers study programs leading to the degrees of Bachelor of Science in Crop Science, Bachelor of Science in Soil Science, Master of Science in Crop Science, Master of Science in Soil Science, Doctor of Philosophy (Crop Science), and Doctor of Philosophy (Soil Science). Students can select from several options of study to fit their career objectives and needs. The Department is also involved with the College of Agricultural, Human and Natural Resource Sciences interdisciplinary Agricultural and Food Systems Degree Program. The Agricultural and Food Systems (AFS) program is an exciting, college-wide, interdisciplinary program that offers a Bachelor of Science degree with five majors and a Master of Science degree. Majors available through AFS include Agricultural Business and Technology Systems, Agricultural Education, Organic Agriculture Systems, Pest Management Systems, and Plant and Soil Systems. More information regarding AFS is available under the Agricultural and Food Systems catalog section.

Students are encouraged to participate as part-time employees in research programs and seek professional internships for applied learning experiences. Departmental and college scholarships are available based on ability, need, and interest. Students gain professional and social contacts with the faculty and other students through the student club activities.

CROP SCIENCE

Crop scientists (or agronomists) are involved in improving food, feed and fiber production. They study metabolic and developmental processes of crop plants and seeds, develop improved crop varieties through plant breeding and biotechnology, design sustainable crop production and management systems which conserve natural resources while enhancing crop yields, and investigate the impact of cropping systems on agricultural and nonagricultural ecosystems. Turf management opportunities include golf course management, recreational facilities management, and lawn care. Graduates qualify for careers in agribusiness, corporate and technical farm management, professional consulting, research, sales, plant biotechnology, and service positions. Positions are available in government and commercial agencies such as USDA’s Agricultural Research Service, Natural Resource Conservation Service and Cooperative Extension; the Environmental Protection Agency; the Washington State Department of Ecology, Department of Agriculture and Department of Natural Resources; as well as in food processing companies, insurance agencies, and commercial concerns dealing with farm products, fertilizers and agricultural chemicals and seeds. Opportunities also exist for further study and employment in international agriculture such as through the US Agency for International Development (USAID) and The World Bank, international research institutes, church run agricultural development organizations, and the US Peace Corps. Teaching, research, and extension careers are available in community colleges and universities for graduates with advanced degrees.

An interdisciplinary curriculum in integrated pest management is available to those students whose interests span the areas of crop science and pest management. This curriculum is described under the entomology section of this bulletin.

Transfer Students

Students planning to transfer to Washington State University should take courses which meet general university and crop science core requirements.

Preparation for Graduate Study in Crop Science

Preparation for graduate study requires the selection of courses that will benefit later work toward a Master of Science or a Doctor of Philosophy degree. Normally, preparation for an advanced degree in crop science includes course work outlined under one of the options with a strong emphasis in plant sciences, chemistry, computer science, mathematics, and statistics.

SOIL SCIENCE

Soil scientists are concerned with the physical, chemical, and biological processes that govern natural and agricultural ecosystems. The study of soil science stresses an understanding of these fundamental processes as they apply to crop production, soil development, and environmental quality. Some of the areas of active interest include:

• Soil Chemical and analytical methods
• Plant Nutrition
• Water Use and Management
• Soil Fertility
• Soil Water Relations
• Soil Ecology and Environment

Graduates qualify for careers in agribusiness, consulting, waste management, research, and service positions. Positions are available with private consulting firms and commercial concerns dealing with farm products. In addition, government agencies including Agricultural Research and Extension, Agricultural Research Service, Departments of Agriculture, Natural Resources and Ecology, and the Natural Resource Conservation Service have need of soil science graduates. Opportunities also exist in international development.

Program Learning Goals

B.S. Crop Science

Specific student learning goals have been identified in the departments such that graduates will:

• Understand the scientific basis and interdisciplinary nature of crop production systems.
• Integrate skills, facts, concepts, principles and research methods from crop and other sciences in order to actively participate in a wide variety of environmental and agricultural activities, including research, outreach, education and management.
• Understand the growth and development of crop plants, current management practices, and factors that influence product quality.
• Build an awareness of the physiological and biochemical processes that occur during growth, development, maturation, and harvest of crop plants.
• Communicate the entire problem solving process in written or oral ways using appropriate traditional and emerging technological media.
• Appreciate the importance of agronomic crops to global society and be able to contribute to the welfare of global society.
• Appreciate the breadth and depth of professional opportunities in agronomy.

B.S. Soil Science

Specific student learning goals have been identified in the departments such that graduates will:

• Understand the scientific basis and interdisciplinary nature of soils and the natural and human systems of which they are a part.
• Integrate skills, facts, concepts, principles and research methods from soil and other sciences in order to actively participate in a wide variety of environmental, agricultural, and urban activities.
• Understand soils as natural bodies, including their patterns over the landscape and their suitability for different purposes.
• Understand the ecosystem functions soil provides, including being: a medium for plant growth, a regulator of and filtration system for our water supply, a natural recycling medium, a habitat for a huge diversity of organisms, and playing crucial role as an engineering medium in urban, rural, and natural systems.
• Communicate the entire problem solving process in written or oral ways using appropriate traditional and emerging technological media.
• Appreciate the importance of soils and their management to global society and be able to contribute to the welfare of global society.
• Appreciate the breadth and depth of professional opportunities that a degree in soil science allows.

Preparation for Graduate Study in Soil Science

Preparation for graduate study requires the selection of courses that will benefit later work toward a Master of Science or a Doctor of Philosophy degree. Normally, preparation for an advanced degree in soil science includes course work outlined under one of the above options plus completion of
Math 171, Phys 102 or 202, and, if not specified in the option, Chem 345.

### AGRICULTURAL AND FOOD SYSTEMS PROGRAM

The Agricultural and Food Systems Degree Program is an exciting, college-wide, interdisciplinary program that offers a Bachelor of Science degree with five majors including Agricultural Business and Technology Systems, Agricultural Education, Organic Agriculture Systems, Pest Management Systems, and Plant and Soil Systems. The program also offers a Master of Science in Agriculture.

In each major, emphasis is placed on gaining a solid background in the agricultural sciences, including learning to work with and in the complexity of agriculture and food systems. All students take a core set of classes in order to develop a broad interdisciplinary background while also studying specific subjects that prepare graduates for their chosen fields. An internship related to the students focus area is included in these requirements.

For specific information regarding this interdisciplinary program, please see the Agricultural and Food Systems section of the WSU General Catalog.

### Schedules of Studies

**Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.**

#### CROP SCIENCE - BUSINESS AND INDUSTRY OPTION (120 HOURS)

For students who wish to engage in farming, corporate farm management, production specialist positions, consulting, international careers, and agribusiness.

**First Year**

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<th>Courses</th>
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<td>ComSt 102 [C] or H D 205 [C] (GER) 3</td>
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#### CROP SCIENCE - CROPPING SYSTEMS OPTION (120 HOURS)

For students who wish to emphasize pest control and environmental quality in cropping systems.

**First Year**

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<td>Chem 102 [P] (GER) 4</td>
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<td>ComSt 102 [C] or H D 205 [C] (GER) 3</td>
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### Third Year

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<td>3</td>
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### CROP SCIENCE - SCIENCE/BIOTECHNOLOGY OPTION (122 HOURS)

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**Second Term**

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**Third Year**

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**Second Term**

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### Fourth Year

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<td>CropS 445 [M]</td>
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### Footnotes

1 First in sequence.

**CROP SCIENCE - SCIENCE/BIOLOGY OPTION (122 HOURS)**

**First Year**

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**Second Year**

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**Third Year**

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**Complete Writing Portfolio**
Crop and Soil Sciences

Third Year

First Term

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Fourth Year

First Term

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Second Term

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Third Term

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Second Term

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<td>CropS 318</td>
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<td>SoilS 441</td>
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Fourth Year

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Second Term

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<td>SoilS 430</td>
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<tr>
<td>SoilS 421 or 441</td>
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<td>SoilS 442</td>
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SOIL SCIENCE - MANAGEMENT OPTION (120 HOURS)

This option deals mainly with factors of the soil-plant environment important to crop production.

First Year

First Term

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<td>Chem 101 [P] or 105 [P] (GER)</td>
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<td>Engl 101 [W] (GER)</td>
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<tr>
<td>Math 107†</td>
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<td>Biol 107 [B] or Bot 120 [B] (GER)</td>
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<td>Chem 102 [P] or 106 [P] (GER)</td>
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<td>Communication Proficiency [C,W] (GER)</td>
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<tr>
<td>Math 140 [N], 171 [N], or Stat 212 [N] (GER)</td>
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Second Year

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<td>Econs 101 [S] (GER)</td>
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<td>GenEd 110 [A] or 111 [A] (GER)</td>
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<tr>
<td>Phys 101 [P] or 201 [P] (GER)</td>
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<td>SoilS 201 [B] (GER)</td>
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<td>Chem 345</td>
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<td>GenEd 110 [A] or 111 [A] (GER)</td>
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<td>Geol 102 [P] (GER)</td>
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<td>Complete Writing Portfolio</td>
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Third Year

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Second Term

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<td>SoilS 301 [M]</td>
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<td>SoilS 360</td>
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<td>SoilS 420</td>
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<td>Elective</td>
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Footnotes
1 Based on the mathematics placement exam scores, students may not need to enroll in Math 107.
### Fourth Year

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<td>SoilS 413</td>
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<td></td>
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<td>SoilS 431</td>
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<td></td>
<td>3</td>
<td>SoilS 451 [M]</td>
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<td>Stat 212 [N] (GER) or 412</td>
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</table>

Footnotes
1. Based on the mathematics placement exam scores, students may not need to enroll in Math 107.

### Minors

**Crop Science**
A minor in crop science may be obtained by students from this and other departments. A minimum of 16 credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. See crop science advisor.

**Soil Science**
A minor in soil science may be obtained by students from this and other departments. Sixteen semester hours in soils is required, at least 9 of which must be in 300-400-level courses taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. See soil science advisor.

### Certificates

**Sustainable Small Acreage Farming and Ranching**
The “Cultivating Success” Certificate Program has been developed to give farmers and students a concentrated focus in Sustainable Small Acreage Farming and Ranching. There are two certificate options available including:
1. Degree-seeking students enrolled at either Washington State University or University of Idaho may sign up for classes through the regular channels and are eligible to receive the Certificate of Completion in Sustainable Small Acreage Farming and Ranching.
2. Community members, not enrolled in a degree program, may sign up for Continuing Education Units. These students are eligible to receive the Certificate of Proficiency in Sustainable Small Acreage Farming and Ranching.

The certificate in Sustainable Small Acreage Farming and Ranching requires 15 - 18 hours with 6-9 hours in the core and 3 hours in each of three module areas. Core: AFSC 416 (3 hours) and SoilS 498 (3-6 hours) Electives: Farm Business Planning: AFSC 417 and other approved courses. Sustainable

### Description of Courses

#### Crop Science Courses

**CropS**

102 Cultivated Plants 3 Production strategies, innovative research, utilization and processing techniques of Washington’s major agronomic and horticultural crops.

104 Introduction of Turfgrass Science and Industry 1 (0-3) Introduction to turfgrass science and industry including golf, sports, lawn, sod and related facilities. Field trip required.

202 Crop Growth and Development 4 (3-3) Same as Hort 202.

301 [M] Turfgrass Management 3 (2-3) Prereq one semester of Biology or Horticulture. Principles of establishment and management of turf for lawns, parks, and golf courses. Field trip required. Cooperative course taught by WSU, open to UI students (PlSc 301).

302 Forage Crops 3 (2-3) Prereq Biol 106 or 120. Adaptation, production, and utilization of forage crops. Field trip required.

305 Ecology and Management of Weeds 3 (2-3) Prereq Biol 106, 120, (currently requires CropS 101, 201, or Hort 101 or 201 now both courses are listed as 102, 202). Weed ecology/management in crop and non-crop systems; weed growth/development, identification, weed control (chemical, mechanical, biological), and environmental issues

317 Golf Course Management 1 Prereq CropS 301. Specific management practices for golf courses in the Pacific Northwest.

318 Athletic Field Management 1 Current athletic field management practices (BMPs) for turfgrass students and turfgrass industry professionals.

360 [II] World Agricultural Systems 3 Prereq two semesters physical or biological sciences. Study of agro-environmental characteristics of world agriculture; historical and contemporary features of world food production. Cooperative course taught by WSU, open to UI students (PlSc 360).

401 Turfgrass Science 3 Prereq CropS 301. Integration of the principles of turfgrass science into turf management for environmental stewardship of turfgrass systems.

403 Advanced Cropping Systems 3 Prereq CropS 201; PPI 429 or c//; or graduate standing. Understanding the management of constraints to crop production and quality; biological, physical, and chemical approaches to crop health management. Field trips required. Credit not granted for both CropS 403 and 503. Cooperative course taught by WSU, open to UI students (PlSc 412).

412 Seminar 1 May be repeated for credit. Current literature and reports on research or special topics.

413 Biology of Weeds 3 Prereq Biol 320, Biology, ecology, and physiology of weeds; crop and weed interactions and interference. Credit not granted for both CropS 413 and 513. Cooperative course taught by UI (PlSc 410), open to WSU students.

425 Crop Biotechnology 3 Prereq Biol 102 Science, techniques and potential concerns underlying the genetic modification of plants.

444 Plant Breeding I 2 Prereq Biol 106, 120, CropS 202, or Hort 202. Genetic principles underlying plant breeding and an introduction to plant breeding.


500 Research Experience V 1-4 May be repeated for credit; cumulative maximum 12 hours. Planned and supervised undergraduate research experience.

501 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

502 Professional Internship V 1-6 May be repeated for credit; cumulative maximum 9 hours. Planned and supervised professional work experience. S, F grading.

512 Topics in Crop Science 1 or 2 May be repeated for credit. Concepts of plant breeding, seed physiology, and technology; crop physiology and management.

513 Biology of Weeds 3 Prereq Biol 320. Graduate-level counterpart of CropS 413; additional requirements. Credit not granted for both CropS 413 and 513.

515 Seminar in Molecular Plant Sciences 1 Same as MFS 515.

520 Plant Cytogenetic Techniques 3 (1-6) Prereq MBioS 301. Plant genes and chromosomes. Cooperative course taught by UI (PlSc 520), open to WSU students.

539 Herbicide Fate and Mode of Action 4 Prereq CropS 305, Biol 320, MBioS 303. Fate of herbicides in plants, soil, and water; physiological and biochemical mode of herbicide action; mechanisms of herbicide resistance. Cooperative course taught jointly by WSU and UI (PlSc 539).

546 Plant Breeding 3 Prereq MbioS 301. Principles and practices of genetic plant improvement. Cooperative course taught by UI (PlSc 546), open to WSU students.

547 Biometrics for Plant Scientists 3 Prereq CropS 101, Stat 212. Biometrical techniques in research with particular emphasis in designing, analyzing, and interpreting agricultural and biological experiments. Cooperative course taught by UI (PlSc 547), open to WSU students.

554 Chromosome Structure and Function 3 Prereq MBioS 301 or equivalent. Structural and functional organization of eukaryotic chromosomes. Cooperative course taught by WSU, open to UI students (PlSc 554).

556 Insecticides: Toxicology and Mode of Action 1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Same as Entom 556.

557 Herbicides: Toxicology and Mode of Action 1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Same as Entom 557.

558 Pesticides Topics 1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Same as Entom 558.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

Soil Science Courses

SoilS 101 Organic Gardening and Farming 3 Principles and production practices of organic gardening and farming. Field trip required.

150 [Q] Science, Society and Sustainable Food Systems 3 (2-3) Introduction to food and farming systems, emphasizing scientific principles and sustainability from environmental and socioeconomic perspectives. Cooperative course taught by WSU, open to UI students (PlSc 150).

201 [B] Soil: A Living System 3 Biological, chemical, and physical properties of soils; fundamentals of soil ecology; soil-water-plant relations, soil fertility, and soil genesis.

301 [M] Ecological Soil Management 3 Prereq SoilS 201. Soil and water conservation and management; land classification and reclamation; soils and environmental quality; sustainable agroecosystems.

345 Sustainable Agriculture 3 Prereq two semesters college-level physical or biological science or by permission. Environmental issues in sustainable agriculture and food production; pesticides, fertilizers, organic wastes, biotechnology, quality of life, and risk-benefit assessment. Cooperative course taught jointly by WSU and UI (Soil 345).

360 [I] World Agricultural Systems 3 Prereq two semesters physical or biological sciences. Same as CropS 360.

368 Introduction to ArcGIS 3 (1-6) Prereq one course in biology, geology, or soils. Introduction to geographic information systems applied to landscape data; geographic coordinate systems and projections, make maps and use geodatabases.

374 Remote Sensing and Airphoto Interpretation 3 (2-3) Physical basis of remote sensing, fundamentals of aerial photography and image analysis applied to agriculture, forestry, wildland management problems.

402 Special Topics in Soils V 1-3 May be repeated for credit; cumulative maximum 6 hours. Presentation and discussion of current soils science subject matter. Cooperative course jointly taught by WSU and UI (Soil 404).

412 Seminar 1 Same as CropS 412.

413 Soil Physics 3 (2-3) Prereq Math 107; Geol 101, 102 or SoilS 201. Characterization of soil properties including water content and potential and hydraulic conductivity; modeling water, solute transport, erosion and contamination of groundwater. Credit not granted for both SoilS 413 and 513.

414 Environmental Biophysics 2 Prereq Math 107. Physical environment of living organisms (temperature, humidity, radiation, wind); heat and mass exchange and balance in plant and animal systems. Credit not granted for both SoilS 414 and 514. Cooperative course taught by WSU, open to UI students (Biol 415).

415 Environmental Biophysics Laboratory 1 (0-3) Prereq SoilS 414 or c/c. Experimental methods and procedures in environmental measurements; temperature, wind, radiation, and humidity measurements in biological environments. Credit not granted for both SoilS 415 and 515. Cooperative course taught by WSU, open to UI students (Biol 436).
421 Environmental Soil Chemistry 3 Prereq two semesters of Chem; SoilS 201. Soil constituents; soil solutions: mineral equilibria; absorption reactions; acid/base reactions; oxidation-reduction; soil contaminants. Credit not granted for both SoilS 421 and S21.

431 Soil Microbiology and Biochemistry 3 (2-3) Prereq MBioS 101 or 201; SoilS 201. Biology and significance of organisms inhabiting soil; roles in nutrient cycling; ecosystem function, agriculture and bioremediation. Credit not granted for both SoilS 431 and S31.

441 Soil Fertility 3 Prereq SoilS 201. Nutrient management impacts on crop productivity; soil and water quality; mineral requirements; soil testing; plant analysis; inorganic and organic fertilizers.

442 Analytical Methods for Soil-Plant-Water Systems 3 (2-3) Prereq SoilS 421 or 441. Standard analytical methods; e.g. major dissolved ions, organic matter concentration, carbon exchange capacity; experimental design; hypothesis testing; statistical methods. Cooperative course jointly taught by WSU and UI (SoilS 404).


468 ArcGIS and Geospatial Analysis 4 (2-6) Prereq Biol 120, Geol 101 or Soils 201. Geographic information systems applied to analysis of landscape data; maps, geographic coordinate systems and projections, geodatabases.

480 Practicum in Organic Agriculture V 1 (0-3) to 6 (0-18) May be repeated for credit; cumulative maximum 12 hours. Prereq by permission. Applied principles and practices of organic agriculture; immersion and participation in all required farming/gardening activities.

490 Composting 2 The composting industry, including biology, methods, benefits, management, regulations, and environmental concerns.

495 Research Experience V 1-4 May be repeated for credit; cumulative maximum 12 hours. Same as CropS 495.

497 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

498 Professional Internship V 1-6 May be repeated for credit; cumulative maximum 9 hours. Planned and supervised professional work experience. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Seminar 1 May be repeated for credit. Presentation of research information.

502 Advanced Topics in Soils V 1-3 May be repeated for credit; cumulative maximum 6 hours. Interpretation, presentation, and discussion of current research on soils, uses, and management.

503 Advanced Soil Analysis V 1-3 May be repeated for credit; cumulative maximum 6 hours. By interview only. Soil research techniques; application of modern instrumentation to soil analysis.

504 Research Presentation Techniques 1 Preparation of visual aids and oral presentation of research findings. S, F grading.

505 Teaching Practicum 1 May be repeated for credit; cumulative maximum 4 hours. Supervised experience in classroom teaching; classroom preparation for lectures, discussions, laboratories, preparation and grading of exams. S, F grading.

511 Research Proposal and Development 2 Same as CropS 511. S, F grading.

513 Soil Physics 3 (2-3) Prereq graduate standing. Characterization of soil properties including water content and potential and hydraulic conductivity; modeling water, solute transport, erosion contamination of groundwater. Credit not granted for both SoilS 413 and S13.

514 Environmental Biophysics 2 Prereq Math 107. Graduate-level counterpart of SoilS 414; additional requirements. Cooperative course taught by WSU, open to UI students (Biol 515).

515 Environmental Biophysics Laboratory 1 (0-3) Prereq SoilS 414 or c/. Graduate-level counterpart of SoilS 415; additional requirements. Cooperative course taught by WSU, open to UI students (Biol 546).

521 Environmental Soil Chemistry 3 Prereq two semesters of Chem; SoilS 201. Graduate-level counterpart of SoilS 421; additional requirements. Credit not granted for both SoilS 421 and S21. Cooperative course taught by WSU, open to UI students (Biol S21).

526 Soil Mineralogy 2 (1-3) Prereq SoilS 421, 451. Distribution and significance of soils minerals; weathering and reactivity of mineral structures; techniques of mineral identification including x-ray diffraction, chemical dissolution, optical and electron microscopy. Cooperative course taught by UI (SoilS 526), open to WSU students.

531 Soil Microbiology and Biochemistry 3 (2-3) Prereq MBioS 101 or 201; SoilS 201. Same as SoilS 431.

533 Advanced Vadose Zone Hydrology 2 Prereq SoilS 411. Methods and models for water, heat, vapor and solute transport in the vadose zone; transfer functions to describe solute transport; non-linear parameter estimation. Cooperative course taught by WSU, open to UI students (SoilS 533).

537 Soil Biochemistry 3 Prereq MBioS 303; Micro 201; SoilS 421. Enzyme activity; microbial activity/biomass; rhizosphere; carbon, nitrogen phosphorus, sulfur, and micronutrient cycles. Cooperative course taught by UI (SoilS 537), open to WSU students.

541 Soil-Plant-Microbial Interactions 3 Prereq SoilS 421, 431, or 441. Soil-plant-microbial relationships to plant nutrition, plant health, and environmental cleanup; rhizosphere chemistry and microbial ecology. Cooperative course taught by WSU, open to UI students (SoilS 541).

547 Soil Fertility Management 3 Prereq SoilS 441. Philosophy of fertilizer recommendations based on soil and plant tissue testing; principles of fertilizer manufacture, placement and use. Cooperative course taught by UI (SoilS 547), open to WSU students.

551 Advanced Pedology 3 Prereq SoilS 451. Origin and development of soil; geochemical and biochemical weathering processes; dynamics of organic matter; soil development cycles. Cooperative course taught by WSU, open to UI students (SoilS 551).

557 Advanced Soil Genesis and Classification 3 (2-3) Prereq SoilS 451. Genesis, classification and interpretation of soils, including field investigation emphasizing existing interrelationships. Cooperative course taught by UI (SoilS 557), open to WSU students.

574 Remote Sensing and Geospatial Analysis 3 (1-4) Prereq SoilS 374; 476 or equivalent. Digital image processing theory and geographic information systems applied to landscape analysis. Cooperative course taught jointly by WSU and UI (For 572).

575 Seminar in Remote Sensing 1 Presentation of research results and ideas on subjects relating to remote sensing.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

Digital Technology and Culture

Digital Technology and culture is an interdisciplinary degree program that combines studies in language and culture, rhetoric, fine arts, cognition and learning, language and society, design and visual communication, and information science to prepare students for careers in a wide range of fields. In completing this degree, students

- Acquire a historically grounded understanding of the role of digital technology as media for cultural transmission.
- Learn to develop persuasive, culturally appropriate content for digital environments.
- Develop a sophisticated understanding of hypermedia and multimedia rhetorics.

Coordinators: D. Grigas (Vancouver), P. Ericsson (Pullman), J. Farman (Tri-Cities)
• Work individually and in teams to design, compose, and complete digital products.
• Gain insight into how digital environments transform the exchange of ideas and how information is used.
• Master the tools of electronic research and the skills of invention, analysis, synthesis, organization, and delivery.

The DTC major requires 39 credits composed of a 24-credit core, a concentration of 12 additional credits, and an internship of at least 3 credits.

The DTC core includes five courses that introduce multimedia rhetorics, research and information technology, the relationship between language and technology, art and technology, and digital diversity. The core also includes interdisciplinary choices in Anthropology, Computer Science, English, Fine Arts, and Sociology. The 12-credit DTC concentration is designed to meet individual interests and strengths. Concentrations are available in Technology and Culture, Media Authoring, and Informatics.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

DIGITAL TECHNOLOGY AND CULTURE (120 HOURS)

First Year

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<th>Course Title</th>
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<td>Make an Impression: Writing for Success</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
<td>Understanding Our World</td>
<td>3</td>
</tr>
<tr>
<td>Math 107 [N] (GER)</td>
<td>College Algebra</td>
<td>3</td>
</tr>
<tr>
<td>Science Elective (GER)</td>
<td>Designing the World Around Us</td>
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<th>Course Title</th>
<th>Hours</th>
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<td>Exploring Cultures</td>
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<tr>
<td>Biological Sciences [B] (GER)</td>
<td>Exploring Life in the Environment</td>
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<td>Communication Elective [C,W] (GER)</td>
<td>Writing for the 21st Century</td>
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<td>F A 102</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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Second Year

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<td>DTC 355 [M]</td>
<td>Digital Technology and Culture</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>Exploring Culture and Technology</td>
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<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K]</td>
<td>3</td>
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<tr>
<td>DTC 356</td>
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<td>DTC 375</td>
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<tr>
<td>Physical Sciences [P] (GER)</td>
<td>Exploring Technology</td>
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Third Year

First Term

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K]</td>
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<tr>
<td>DTC Concentration Elective</td>
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<tr>
<td>DTC Core Option</td>
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<tr>
<td>F A 331</td>
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Second Term

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<tr>
<td>DTC 475</td>
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<tr>
<td>DTC Core Option</td>
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<td></td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
<td>3</td>
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<tr>
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Fourth Year

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<tbody>
<tr>
<td>DTC Concentration Elective</td>
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<td>Tier III Course [T] (GER)</td>
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Second Term

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<th>Course Code</th>
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<tr>
<td>Senior Seminar, Thesis, or Internship</td>
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<td></td>
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<tr>
<td>Electives</td>
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</tr>
</tbody>
</table>

Footnotes

1 Prerequisite to F A 331.
2 Consult with an advisor for a list of approved courses and prerequisites.

Minors

Digital Technology and Culture

A student may certify in a DTC minor after the completion of 60 semester hours. A minimum of 18 semester hours of approved, upper-division is required for the minor from the following: DTC/Engl 355 and 375, F A 331 and three from Anth 350, AmSt/Engl/DTC 475, DTC/Engl 356, 478, Engl 301, 336, 402, 405, F A 332, 363, 434, Soc 375 or 430. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

School of Earth and Environmental Sciences

www.sees.wsu.edu
Webster Physical Science Bldg. Room 1228
509-335-3009
Student Svs., 305 Troy Hall, 509-335-8538

Interim Director and Professor, S. M. Bollens; Professors, F. F. Foit, Jr., F. A. Ford, D. R. Gaylord, C. K. Keller, P. B. Larson, A. J. Watkinson, J. A. Wolff; Associate Professors, R. A. Gill, M. C. Pope, D. Schutze-Makuch, B. Tissot, J. D. Vervoort; Assistant Professors, J. Harrison, S. Henderson, G. Rohlwagen-Bollens; Instructor, K. M. Wilkie; Associate Professor and Program Coordinator at WSU Tri-Cities, R. G. Schreckhise; Research Professor, A. L. Brooks; Adjunct Faculty, R. L. Patton, S. P. Reidel; Professors Emeriti, G. W. Hinman, P. E. Rosenberg, G. D. Webster, G. L. Young.

The School of Earth and Environmental Sciences is a new unit established August, 2006 comprised of the former Program in Environmental Science and Regional Planning and the Department of Geology. The School offers a Bachelor of Science in Environmental Science, Bachelor of Science in Geology, Master of Science in Environmental Science, Master of Regional Planning, Master in Geology, Doctor of Philosophy (Environmental and Natural Resource Sciences) and Doctor of Philosophy (Geology). The Masters and Bachelors degrees in Environmental Science are offered at WSU Tri-Cities. A Bachelor of Science in Environmental Science is also offered at WSU Vancouver. Minors in Environmental Science and Geology are available.
The School of Earth and Environmental Sciences (SEES) focuses on the study of the earth, the environment, and the role of humans in modifying earth and environmental systems. SEES investigates the materials and processes of the geologic past to better understand the present and future states of our planet. Such materials and processes range in scale from the atomic structure of minerals to global patterns of geochemical cycling and climate change. Inherent in these studies is the application of the basic chemical, mathematical and physical sciences to investigate complex geologic and environmental systems. The study of human impact on the environment is inherently interdisciplinary, involving, in addition, biological and social sciences, as well as elements of policy, planning, and ethics. The interdisciplinary study of earth and environmental systems is the hallmark of the SEES approach to increasing understanding of the earth system and to providing a sound scientific basis for environmental decision-making.

Environmental Science and Regional Planning

The program coordinates two closely related fields of study: environmental science and regional planning. Environmental science is concerned with the study of natural and modified environments and their interactions with biological (including human) systems with an emphasis on the comprehensive understanding of the environmental/ecological context, assessment of beneficial and disruptive impacts, and methodologies to analyze, interrelate and resolve these complex systems. The regional planning curriculum provides an understanding of basic issues, methods, and processes in rural, land use, and environmental planning with comprehensive studies of natural and human systems. Students of both fields acquire the holistic and interdisciplinary perspectives and ecological understanding necessary to prepare them for a variety of roles in the study, planning, and management of resources and the environment.

All graduating students in environmental science will: 1) have a well-rounded, general science background in the physical and life sciences, with solid training in the social sciences; 2) have developed an in-depth, interdisciplinary expertise in an area of concentration within the field (these would include but not be limited to environmental assessment, hazardous waste management, ecosystem science and management, environmental planning, or systems analysis); 3) have developed an interdisciplinary cognizance of the field and practice of environmental science through the study of public policy and planning; 4) have developed effective oral and written communication skills; and 5) have developed skills in problem-solving and management.

The program offers courses of study leading to the degrees of Bachelor of Science in Environmental Science, Master of Science in Environmental Science, Master of Regional Planning, and Doctor of Philosophy (Environmental and Natural Resource Sciences). The masters and bachelors degrees in environmental science are offered at WSU Tri-Cities. A Bachelor of Science in Environmental Science is offered at WSU Vancouver.

Because of the diversity of these fields, the course of study for each student is flexibly designed in a unique, multi-optional interdisciplinary context. Environmental science majors can specialize in agricultural ecology, biological science, human or cultural ecology, environmental education, environmental quality control, hazardous waste management, natural resource management, physical science, systems and environmental land-use planning. Regional planning majors can specialize in a variety of areas including land-use planning, ecological planning, geographic assessment and planning, and environmental policy and planning. Environmental science majors specializing in environmental education may work toward senior high school teaching certificates with endorsements for the major and minors in physical and biological science.

The program is closely coordinated with the Environmental Research Center and other university research units. It is administratively supported by the Colleges of Agricultural, Human and Natural Resource Sciences, Engineering and Architecture, Sciences and Liberal Arts. The participating faculty resource list for the program includes some 65 members representing many disciplines.

Preparation for Graduate Study

Before applying for admission to the graduate programs, a student should have completed an undergraduate curriculum that included examination of a physical, biological, or social science system in sufficient depth to serve as background for advanced investigation of one or more of these systems in an ecological context and a minimum GPA of 3.0. For graduate study in environmental science, previous course work in sociology or cultural anthropology, conservation of natural resources, biological science, chemistry or physics, calculus, and ecology is required. Students interested in assistantships should provide Graduate Record Examination scores. General requirements for the Master of Science degree in Environmental Science include 300-400-level or graduate-level courses in ecology, mathematics, statistics, or computer science; applied physical, biological, or social science; environmental impact assessment; graduate seminar; and special topics in environmental science; an option (an area of specialization) with a minimum of 10 credit hours of courses; and a thesis or special project. A minimum of 32 hours of graduate credit is required. The program has been successful in placing MS graduates in a variety of positions with federal, state, and local agencies, industries, and academia, as environmental and resource management specialists. Students entering the Master of Regional Planning (MRP) program are expected to have previous course work in economics, sociology or cultural anthropology, natural science, quantitative skills such as mathematics, and communication skills. Applicants are expected to have a minimum GPA of 3.0 in their undergraduate field and to present evidence of commitment to the field of planning. Prior work experience in planning or related fields is considered in evaluating applicants. Students are required to complete no fewer than 35 graduate credit hours, including a minimum of 9 hours of core planning courses, and 6 hours of thesis or 4 hours of project credit.

MRP candidates are expected to develop a specialization through course work in an allied discipline, but the philosophy of the program is oriented toward preparing graduates for practice in public agencies, tribal agencies, or as consultants in the private sector.

Students entering the PhD program should have a GPA of at least 3.0, 10 semester hours of basic biological and/or physical sciences, and a faculty member to act as advisor. A total of 72 hours is required beyond the bachelor's degree, 34 of which must be in graded course work.

Geology

Geology is the study of the Earth, its composition, structure, origin and evolution. Virtually every aspect of modern life is in some way dependent on the science of geology. For example it is the geologist's job to discover new reserves of energy and raw materials, evaluate groundwater quality and quantity for drinking water supply, assess geologic hazards in land-use planning and unravel the mechanisms of continental drift and biological evolution.

Both general and advanced training is offered in most specializations in geology. The lower-division courses are designed to provide a strong foundation for those who major in geology as well as a stimulating introduction to earth science for the non-major. The 300-400-level courses provide training for professional geological work as well as preparation for postgraduate study.

The department has modern teaching facilities and special equipment, including an electron microprobe, X-ray diffraction and fluorescence instrumentation, inductively coupled plasma mass spectrometer, isotope extraction lines and isotope mass spectrometer, gas chromatographs and carbon analyzer, drilling rig, groundwater field demonstration site, transmitted and reflected light microscopes. There are active research programs in igneous petrology, geochemistry and mineralogy, structural geology and tectonics, groundwater and contaminant hydrology, sedimentology and stratigraphy.

The department offers courses of study leading to the degrees of Bachelor of Science in Geology, Master of Science in Geology, and Doctor of Philosophy (Geology).

Geology majors are expected to graduate with a complete understanding of earth, including its constituent materials, the environments and processes through which these materials form and interact, and its physical, chemical, and biological evolution. The students are expected to be capable of examining and interpreting relations among geologic materials in the field. Problem solving and critical thinking will be applied in the classroom, laboratory, and field, and effective communication skills will be expected. The students will demonstrate quantitative understanding of earth materials and processes.

Honors Students

A senior thesis or enrollment in Geol 499 is required

Preparation for Graduate Study

As preparation for work toward an advanced degree in geology, a student should have completed, or plan to take without graduate credit, the following or their equivalents: Geol 102, 210, 308, 320, 340, 350, 355, 356, 362; one year of general physics; one year of general inorganic chemistry; mathematics through one semester of calculus.

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Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

ENVIRONMENTAL SCIENCE REQUIREMENTS (120 HOURS)

This course of study for the bachelor’s degree is organized around the requirements listed below. A sequence will be designed by each student and the major advisor to provide an individualized area of specialization. The program has identified seven optional areas of specialization: agricultural ecology and soils, biological science, hazardous waste management, environmental education, air and water quality, natural resources management, systems, and environmental analysis. (Fact sheets on each option are available from the ES/RP Program Office.) Students may also, in consultation with their advisor, develop an area of specialization outside of those identified. Eighteen hours are required in the chosen area of specialization (normally in not more than two departments). Each major must also complete 8 hours in a modern foreign language unless he/she has completed two years of such language in high school (or one year in high school and 4 hours in the same language at WSU). The program provides a strong foundation for advanced study in many professional and basic research fields.

Requirements for certification into the Bachelor of Science Program in Environmental Science:
1. completion of 30 semester hours of course work with a GPA of 2.0, and
2. completion of the courses listed in the catalog in the freshman year of the environmental science curriculum with a grade of C- or better. (Courses not required to fulfill university requirements for graduation may be waived for certification.)

First Year

First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Chem 105 [P] (GER)</td>
<td>4</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
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<tr>
<td>ES/RP 101 [B] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
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<tr>
<td>Electives</td>
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Second Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<td>Chem 106 [P] (GER)</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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</tr>
<tr>
<td>Intercultural Studies [L,G,K] (GER)</td>
<td>3</td>
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<tr>
<td>Math 140 [N] or 171 [N] (GER)</td>
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Second Year

First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,L,G] (GER)</td>
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<td>Biol 106 [B] (GER)</td>
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<td>Engl 201 [W] or 301 [W] (GER)</td>
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<td>Geol 230</td>
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<td>Phys 101 [P] or 201 [P] (GER)</td>
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Second Term

<table>
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<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biol 107 [B] (GER)</td>
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<tr>
<td>Geol 101 [P], 102 [P], 210 [P],</td>
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<td>or Soil 201 [B] (GER)</td>
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Option Course

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<tbody>
<tr>
<td>Social Sciences [S,K] (GER)</td>
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<tr>
<td>Complete Writing Portfolio</td>
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Third Year

First Term

<table>
<thead>
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<th>Course</th>
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<tbody>
<tr>
<td>Biol 372</td>
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<tr>
<td>ES/RP 310</td>
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<tr>
<td>ES/RP 490</td>
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<tr>
<td>Stat 212 [N] (GER) or 412</td>
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Second Term

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>300-400-level Geol Elective</td>
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<td>Arts &amp; Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Environmental Policy Elective</td>
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<tr>
<td>ES/RP 404 [M]</td>
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Fourth Year

First Term

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<td>MBio 301 or 303</td>
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Option Courses

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<td>Advanced Physics</td>
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<tr>
<td>ES/RP 444</td>
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<td>ES/RP 491</td>
<td>4</td>
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<td>Option Courses</td>
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<tr>
<td>Tier III Course [T] (GER)</td>
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</tbody>
</table>

Footnotes

1. Math 107 or concurrent enrollment is the prerequisite for Chem 105 and Math 140/171.
2. The remaining GERs should include paired introductory and 300-400-level courses in economics, agricultural economics, and either sociology or cultural anthropology. Consult advisor.
3. An alternative is Engl 402 [W] which has a prerequisite of junior standing.
4. Select one from Pol S 430, NATRS 438, or ES/RP 335.

GEOLOGY REQUIREMENTS (120 HOURS)

A 2.0 minimum GPA in the major is required.

First Year

First Term

<table>
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<th>Hours</th>
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<tbody>
<tr>
<td>Chem 105 [P] (GER)</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
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<td>Electives</td>
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Second Term

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<tr>
<th>Course</th>
<th>Hours</th>
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<td>Chem 106 [P] (GER)</td>
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<td>ComSt 102 [C] (GER)</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Math 140 [N] or 171 [N] (GER)</td>
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Second Year

First Term

<table>
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<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biol 107 [B] (GER)</td>
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<td>Geol 210 [P] (GER)</td>
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<td>Geol 351</td>
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<td>Math 172, Cpt S 121, or Stat 412</td>
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Environmental Science

A minor in environmental science requires 18 hours, including ES/RP 101, 335, 444, and elective courses to be chosen in consultation with an ES/RP advisor. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

Geology

A student with 90 semester hours may certify a minor. A minor requires a minimum of 16 semester hours of letter-graded geology coursework, 9 hours of which must be in 300-400-level course work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. A minimum 2.0 GPA in geology minor course work is required.
### Description of Courses

#### Environmental Science/Regional Planning Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES/RP 101 [B]</td>
<td>Environment and Human Life</td>
<td>3 (3-3) Interactions between humans and their environment; multidisciplinary introduction to environmental concepts and concerns.</td>
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<tr>
<td>ES/RP 174</td>
<td>Introduction to Meteorology and the Atmospheric Environment</td>
<td>Same as C E 174.</td>
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<tr>
<td>ES/RP 278</td>
<td>Special Topics: Study Abroad</td>
<td>V 1-15 May be repeated for credit.</td>
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<tr>
<td>ES/RP 285</td>
<td>Planning for a Sustainable Environment</td>
<td>3 Prereq ES/RP 101. Ideas and information necessary to integrate environmental viability and sustainable development with other concerns of environmental planning.</td>
<td>3</td>
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<tr>
<td>ES/RP 301</td>
<td>Forest and Range Plant Resources I</td>
<td>3 (2-3) Prereq NATRS 300 or c/. Same as NATRS 301.</td>
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<tr>
<td>ES/RP 310</td>
<td>Modeling the Environment</td>
<td>4 (3-3) Construction and testing of computer simulation models of environmental systems. Cooperative course taught by WSU, open to UI students (EnvS 210).</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 311</td>
<td>Natural Resource Economics</td>
<td>3 Rec EconS 101. Same as EconS 330.</td>
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<tr>
<td>ES/RP 375</td>
<td>Aspects of Sustainable Development</td>
<td>3 Prereq junior standing. Same as EconS 375.</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 385 GIS Primer</td>
<td>3 (2-2) Introduction to basic concepts and applications of geographic information systems (GIS), lab exercises on PC-based GIS packages. Cooperative course taught by UI (Geog 385), open to WSU students.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ES/RP 402</td>
<td>Human Health and the Environment</td>
<td>3 Prereq Biol 106, 107, Chem 105, 106; ES/RP 335 or junior in environmental science and regional planning. Problem-solving approach to adverse effects on human health caused by contamination of environmental media or anthropogenic changes in ecosystems. Credit not granted for both ES/RP 402 and 502.</td>
<td>4</td>
</tr>
<tr>
<td>ES/RP 403</td>
<td>Environmental Geology</td>
<td>3 Prereq Geol 101 or 102. Same as Geol 403.</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 406</td>
<td>Introduction to Radiological Science</td>
<td>2 Prereq one course each in biology, calculus, chemistry, and physics. Fundamentals of atomic physics; interactions of radiation with matter; radiation dosimetry and biology, radiocology and radiological health protection.</td>
<td>2</td>
</tr>
<tr>
<td>ES/RP 409</td>
<td>Applied Radiological Physics</td>
<td>3 (2-3) Prereq calculus course; Phys course; Rec ES/RP 406. Production, interactions and measurement of radiation, with application to radiological health protection concerns. Credit not granted for both ES/RP 409 and 509.</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 411 [M]</td>
<td>Limnology and Aquatic Ecosystem Management</td>
<td>3 (2-3) Prereq Biol 102 or 120; Chem 101. Same as Natrs 411.</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 412</td>
<td>Natural Resource and Environmental Policy and Law</td>
<td>3 Prereq junior standing or permission of instructor. Same as NATRS 438.</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 414</td>
<td>Environmental Biophysics</td>
<td>2 Prereq Math 107. Same as Soils 414.</td>
<td>2</td>
</tr>
<tr>
<td>ES/RP 415</td>
<td>Environmental Biophysics Laboratory</td>
<td>1 (0-3) Prereq Soils 414 or c/. Same as Soils 415.</td>
<td>1</td>
</tr>
<tr>
<td>ES/RP 416</td>
<td>Radiation Biology</td>
<td>4 (3-3) Prereq introductory radiological physics, or one course each in biology and radiological physics; Rec ES/RP 406. Effects of ionizing radiation at the molecular, cellular, organ and organism level. Credit not granted for both ES/RP 416 and 516.</td>
<td>4</td>
</tr>
<tr>
<td>ES/RP 418</td>
<td>Human Issues in International Development</td>
<td>3 Same as Anth 418.</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 420</td>
<td>Field and Laboratory Techniques in Environmental Science</td>
<td>2 May be repeated for credit; cumulative maximum 6 hours. Prereq Biol 372; Chem 105. Fundamentals and hand-on experience on the use of field and laboratory techniques and instruments utilized in environmental science. Field trips required.</td>
<td>2</td>
</tr>
<tr>
<td>ES/RP 424</td>
<td>Environmental Health Assessment</td>
<td>3 Prereq one course each in biology, calculus, chemistry, general ecology and physics; Rec ES/RP 406. Environmental transport, fate and effects of radioactive and hazardous materials. Credit not granted for both ES/RP 424 and 524.</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 425</td>
<td>Economic Analysis of Environmental Policies</td>
<td>3 Prereq Ag Ec 201 or Econ 101. Same as EconS 431.</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 435</td>
<td>Resolving Environmental Conflicts</td>
<td>4 (3-3) Prereq junior standing, two social science courses. Same as CRS 435. Credit not granted for both ES/RP 435 and 535.</td>
<td>4</td>
</tr>
<tr>
<td>ES/RP 444</td>
<td>Environmental Assessment</td>
<td>4 Rec Biol 372. Environmental impact statements and their national and state policy frameworks, methods of assessment, and team preparation of an impact statement. Credit not granted for both ES/RP 444 and 544. Cooperative course taught by WSU, open to UI students (Geog 444).</td>
<td>4</td>
</tr>
<tr>
<td>ES/RP 445</td>
<td>Hazardous Waste Management</td>
<td>3 Environmental, technical, and political aspects of hazardous waste management; evaluative methods, risk assessment, and current management requirements. Credit not granted for both ES/RP 445 and 545. Same as Natrs 445. Cooperative course taught by WSU, open to UI students.</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 451</td>
<td>Energy Production and the Environment</td>
<td>2 Prereq biology course; general ecology course; Rec ES/RP 406. Evaluation of the impacts of nuclear and other forms of energy production on humans and the environment. Credit not granted for both ES/RP 451 and 551.</td>
<td>2</td>
</tr>
<tr>
<td>ES/RP 466</td>
<td>Environmental Psychology</td>
<td>3 Prereq Psych 105. Same as Psych 466.</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 471</td>
<td>Meteorology</td>
<td>3 Prereq Math 273; Phys 202. Basic meteorology; atmospheric thermodynamics; cloud physics; synoptic meteorology; radiative processes; climate change. Credit not granted for both ES/RP 471 and 571.</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 472</td>
<td>Economic Development and Underdevelopment</td>
<td>3 Prereq Econ 102. Rec Econ 305. Same as EconS 427.</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 480</td>
<td>Advanced Resource Economics</td>
<td>3 Prereq Math 201, 202. Same as Ag Ec 480.</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 481</td>
<td>Economics of Environmental Issues</td>
<td>3 Prereq Econ 101; Rec Econ 301. Same as Econ 481.</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 482</td>
<td>Special Topics: Study Abroad</td>
<td>V 1-15 May be repeated for credit.</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 486</td>
<td>Introduction to Geographic Information Systems</td>
<td>4 (2-6) Rec DOS knowledge. Geographic Information Systems technology. Credit not granted for both ES/RP 486 and 586.</td>
<td>4</td>
</tr>
<tr>
<td>ES/RP 490</td>
<td>Special Topics</td>
<td>V 1-3 May be repeated for credit; cumulative maximum 6 hours.</td>
<td>1-3</td>
</tr>
<tr>
<td>ES/RP 491</td>
<td>Senior Seminar</td>
<td>1 Prereq senior in environmental science and regional planning.</td>
<td>1</td>
</tr>
<tr>
<td>ES/RP 492</td>
<td>Special Topics</td>
<td>V 1-3 May be repeated for credit; cumulative maximum 3 hours.</td>
<td>1-3</td>
</tr>
<tr>
<td>ES/RP 493</td>
<td>Special Topics</td>
<td>V 1-3 May be repeated for credit; cumulative maximum 3 hours.</td>
<td>1-3</td>
</tr>
<tr>
<td>ES/RP 495</td>
<td>Undergraduate Internship</td>
<td>V 1-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Practical experience in appropriate agencies; for career students in environmental science.</td>
<td>1-12</td>
</tr>
<tr>
<td>ES/RP 496</td>
<td>Cooperative Education Internship</td>
<td>V 2-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Practical experience in appropriate agencies; for career students in environmental science.</td>
<td>2-12</td>
</tr>
<tr>
<td>ES/RP 499</td>
<td>Special Problems</td>
<td>V 1-4 May be repeated for credit.</td>
<td>1-4</td>
</tr>
<tr>
<td>ES/RP 502</td>
<td>Human Health and the Environment</td>
<td>Prereq Biol 106, 107, Chem 105, 106; ES/RP 335 or junior in environmental science and regional planning. Graduate-level counterpart to UI students. Same as NATRS 502.</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 504</td>
<td>Ecosystem Management</td>
<td>3 Analysis of ecosystem processes; dual emphasis on ecological principles and development of methods and concepts to evaluate policies for management.</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 505</td>
<td>Environmental Law</td>
<td>3 Fundamentals of environmental law; application to current environmental cases; legal and policy implications. Credit not granted for both ES/RP 505 and 555.</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 509</td>
<td>Economic Development and Environmental Policy</td>
<td>3 Rec Econ 101. Same as EconS 509.</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 516</td>
<td>Environmental Health Engineering</td>
<td>3 Students must meet with the instructor to determine topics and credit. Same as NATRS 516.</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 524</td>
<td>Cooperative Education Internship</td>
<td>V 1-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Practical experience in appropriate agencies; for career students in environmental science.</td>
<td>1-12</td>
</tr>
<tr>
<td>ES/RP 525</td>
<td>Cooperative Education Internship</td>
<td>V 1-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Practical experience in appropriate agencies; for career students in environmental science.</td>
<td>1-12</td>
</tr>
<tr>
<td>ES/RP 526</td>
<td>Cooperative Education Internship</td>
<td>V 1-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Practical experience in appropriate agencies; for career students in environmental science.</td>
<td>1-12</td>
</tr>
<tr>
<td>ES/RP 527</td>
<td>Cooperative Education Internship</td>
<td>V 1-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Practical experience in appropriate agencies; for career students in environmental science.</td>
<td>1-12</td>
</tr>
<tr>
<td>ES/RP 528</td>
<td>Cooperative Education Internship</td>
<td>V 1-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Practical experience in appropriate agencies; for career students in environmental science.</td>
<td>1-12</td>
</tr>
<tr>
<td>ES/RP 529</td>
<td>Cooperative Education Internship</td>
<td>V 1-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Practical experience in appropriate agencies; for career students in environmental science.</td>
<td>1-12</td>
</tr>
<tr>
<td>ES/RP 532</td>
<td>Special Problems</td>
<td>V 1-4 May be repeated for credit.</td>
<td>1-4</td>
</tr>
</tbody>
</table>

Earth and Environmental Sciences
509 Applied Radiological Physics 3 (2-3) Prereq calculus course; Phys course; Rec ES/RP 406. Graduate-level counterpart of ES/RP 409; additional requirements. Credits not granted for both ES/RP 409 and 509.

514 Environmental Biophysics 2 Prereq Math 107. Same as SoilS 514. Graduate-level counterpart of ES/RP 414; additional requirements. Credit not granted for both ES/RP 414 and 514. Cooperative course taught by WSU, open to UI students (Bot 532).

516 Radiation Biology 4 (3-3) Prereq introductory radiological physics, or one course each in biology and radiological physics; Rec ES/RP 406. Graduate-level counterpart of ES/RP 416; additional requirements. Credit not granted for both ES/RP 416 and 516.

519 International Development and Human Resources 3 Same as Anth 519.

524 Environmental Health Assessment 2 Prereq one course each in biology, calculus, chemistry, general ecology and physics; Rec ES/RP 406. Graduate-level counterpart of ES/RP 424; additional requirements. Credit not granted for both ES/RP 424 and 524.

526 Population Analysis 1 Prereq NATRS/Entom/Biol 529, biometry. Same as NATRS 526.

527 Environmental Chemistry 2 Same as Chem 527.

529 Population Theory 1 Prereq general ecology. Same as NATRS 529.

530 Fundamentals of Industrial Safety 2 Prereq graduate standing or by interview only. Fundamentals for recognizing and controlling hazards and losses to protect the safety and health of workers.


532 Applied Environmental Toxicology 3 Prereq ES/RP 531 or P/T 505. Overview of the field of environmental toxicology; interactions of xenobiotics with natural systems.

534 Industrial Ecology: Theory and Practice 3 Complex relationships and interactions among industrial activities, the environment, and society and the need for a sustainable system.

535 Resolving Environmental Conflicts 4 (3-3) Prereq graduate standing, two social science courses. Same as CRS 535. Graduate-level counterpart of ES/RP 435; additional requirements. Credit not granted for both ES/RP 435 and 535.

544 Environmental Assessment 4 Rec Biol 372. Graduate-level counterpart of ES/RP 444; additional requirements. Credit not granted for both ES/RP 444 and 544. Cooperative course taught by WSU, open to UI students (Geog 544).

545 Hazardous Waste Management 3 Graduate-level counterpart of ES/RP 445; additional requirements. Credit not granted for both ES/RP 445 and 545. (EnvS 545) Cooperative course taught by WSU, open to UI students.

548 Environmental Law 3 By interview only. Environmental planning and protection, regulation of air and water pollution, waste disposal, use of pesticides and other toxic chemicals, and remedies for environmental injury. Cooperative course taught by UI (Law 947), open to WSU students.

549 Public Land Law 3 History of public lands, problems with ownership of land by governments, legal issues including land sales, mineral extraction, livestock grazing, timber harvest, recreation, wildlife protection, and preservation. Cooperative course taught by UI (Law 948), open to UI students (EnvS 550).

550 System Dynamics Models of Environmental Systems 3 Prereq graduate standing. Analysis of environmental system dynamics; development and uses of simulation models using the Stella software on Macintosh. Cooperative course taught by WSU, open to UI students.


555 Environmental Planning 3 State, local and federal approaches to environmental planning and their interactions in private and public land use and development decisions. Cooperative course taught jointly by WSU and U of I (EnvS 555).

556 Insecticides: Toxicology and Mode of Action 1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Same as Entom 556.

557 Herbicides: Toxicology and Mode of Action 1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Same as Entom 557.

558 Pesticide Topics 1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Same as Entom 558.

560 Watershed Management 3 Prereq NATRS 204, completion of department requirement in biology, chemistry, and physical science, mathematics and statistics; or by interview. Same as NATRS 560.

567 Advanced Applications in GIS 4 (1-6) GIS concepts using ARC/INFO geographic information systems.

569 Ecosystem Ecology and Global Change 3 Prereq Biol 372; Chem 106. Historic and current factors controlling the function of ecosystems and their response to natural and human-caused global change.

571 Meteorology 3 Graduate-level counterpart of ES/RP 471; additional requirements. Credit not granted for both ES/RP 471 and 571.

575 Geographic Information Systems 3 Prereq Geol 385. Computerized management of data organized on regional geographic bases; preparation overlay, coding, and manipulation of data for regional planners and land managers. Cooperative course taught by UI (Geog 475), open to WSU students.

584 Engineering Aspects of Aquatic Biology 2 (1-3) or 3 (1-6) Prereq C E 583. Same as C E 584.

585 Aquatic System Restoration 3 (2-3) Prereq Chem 345 or C E 583; MBioS 101 or C E 581. Aquatic System Restoration 3 (2-3) Same as C E 585.

586 Introduction to Geographic Information Systems 4 (2-6) Rec DOS knowledge. Graduate-level counterpart of ES/RP 486; additional requirements. Credit not granted for both ES/RP 486 and 586.

590 Special Topics 2 May be repeated for credit; cumulative maximum 6 hours. Cooperative course taught by WSU, open to UI students (Geog 590).

591 Special Topics 2 May be repeated for credit; cumulative maximum 4 hours.

592 Special Topics V 1-4 May be repeated for credit; cumulative maximum 4 hours.

593 Seminar in Environmental Science and Regional Planning 1 May be repeated for credit; cumulative maximum 8 hours.

594 Environmental and Natural Resources Issues and Ethics 3 Prereq senior standing. Same as NATRS 594.

595 Graduate Internship V 2-5 By interview only. Practical work experience in appropriate agencies; for graduate career students. S, F grading.

597 Technical and Public Communications in Environmental Science 2 Prereq technical writing course; Rec public speaking course. Development of written and oral communication skills for practical application in the field of environmental science.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Geology Courses

Geol 101 [P] Introduction to Geology 4 (3-3) Introductory physical geology for non-science majors; emphasis on western US Credit not granted for more than one of Geol 101, 102, 180.
102 [P] Physical Geology 4 (3-3) For science majors and honors students. Modern concepts of earth science; mineral rock, resource, and map study. Field trip required. Credit not granted for more than one of Geol 101, 102, 180.

103 The Solar System 3 Overview of the results of modern planetary exploration, geological processes and environments on planets and moons in our solar system. Field trip required.

150 [Q] Conflict and Debate in Geological Sciences 4 (3-3) Examples in geology of how science is done, how it advances, and what constitutes scientific work. Field trip required.

180 [P] Honors Geology 4 (3-3) Prereq honors student or by interview. Introduction to physical geology with emphasis on original research and scientific writing. Credit not granted for more than one of Geol 101, 102, 180. Field trip required.

201 Geology of the National Parks 2 Prereq Geol 210. Significant geologic features, processes, and geologic history of the national parks. Field trip optional.

206 Field Petrology 3 (2-3) Prereq Geol 101 or 102. Hand sample analysis, petrogenesis and field relationships of rocks. Field trips required.

210 [P] Earth's History and Evolution 4 (3-3) Rec Biol 102. Introduction to earth's history and evolution through observations, data collection and analysis, readings and writing exercises. Two field trips required.

221 Field Trip 1 (0-3) May be repeated for credit. Prereq Geol 210. One-week field trip to study geology of a selected area of the western United States. S, F grading.

230 [P] Introductory Oceanography 3 Basic physical, chemical, geological and biological principles underlying oceanic phenomena; for both science and non-science majors.

275 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

276 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

277 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

307 Geology Field Camp 3 (0-9) Prereq Geol 101, 210. Introduction to geologic field methods; basic geologic mapping. Cooperative course taught jointly by WSU and UI (Geol 290).

308 [M] Field Geology 3 (0-9) Prereq Geol 307, 340, 350. Advanced field problems and methods; interpretation of field data, preparation of reports based on field observations and interpretations. Cooperative course taught jointly by WSU and UI (Geol 490).

310 Invertebrate Paleontology 3 (2-3) Prereq Geol 210. Morphology, classification, evolution, and paleoecology of fossil invertebrate organisms.

315 Water and the Earth 3 (2-3) Prereq Chem 106, Geol 101 or 260; Math 140, 171, or c//; Phys 102 or 202. Global hydrologic cycle, including rivers and weathering, groundwater, rainwater and the atmosphere, oceans, human impacts. Field research required.


322 [P] Geology of the Pacific Northwest 3 Prereq Geol 101 or 102. Physical geology of the Pacific Northwest focusing on geological processes important in its evolution. Field trips required. Credit not granted for both Geol 322 and 323.

323 [P] Geology of the Pacific Northwest 4 (3-3) Prereq Geol 101 or 102. Physical geology of the Pacific Northwest focusing on geological processes important to its evolution. Field trips required. Credit not granted for both Geol 322 and 323.


350 Mineralogy and Crystallography 4 (2-6) Prereq Chem 101 or 105; Geol 101, 102, 180, 206, 210, or 230. Composition, physical properties, structure, crystallography, identification, and origin of minerals. Field trip required.


390 [P] Living on the Edge: Global Climate Change and Earth History 3 Prereq junior standing. Global earth system: ocean, earth, atmosphere, biosphere, and cryosphere; human impact on the climate system; climate change data predictions; debates.

391 [P] Living on the Edge: Global Climate and Environmental Change Laboratory 1 1 (0-3) Prereq junior standing. Laboratory for Geol 390.

403 Environmental Geology 3 Prereq Geol 101 or 102. Geological hazards and geologic problems associated with human activities. Optional field trip.

405 Geophysics 4 (3-3) Prereq Geol 340. Theory and application of geophysical methods for hydrology, environmental, engineering, exploration, and structural geology; review of techniques. Credit not granted for both Geol 405 and 505.

406 Basin Analysis 3 3 Prereq Geol 320. Characteristics of sedimentary basins and methods for studying them. One two-day field trip required. Cooperative course taught by UI (Geol 405); open to WSU students.

413 Soil Physics 3 (2-3) Prereq Math 107; Geol 101, 102 or SoilS 201. Same as SoilS 413. Credit not granted for both Geol 413 and 513.

418 Geomicrobiology 3 Explore the interactions of microorganisms with the environment, particularly soil rock-water interaction and how microorganisms are important to our understanding of geological and hydrological processes; topics include ground water microbiology, subsurface microbiology and the microbiology of extreme environments. Additional work required for graduate credit. Credit not granted for both Geol 418 and 518. Cooperative course taught by UI (Geol 418); open to WSU students.


428 Geostatistics 3 Prereq Stat 360. Same as Stat 428. Cooperative course taught by UI, open to WSU students (GeolE 428).

444 Earthquakes and Seismic Hazards 3 Prereq Geol 101, Phys 101. Geology of earthquakes from the mechanics of failure to seismic waves to seismicity associated with all fault types in a variety of tectonic settings; methods of identifying paleo-earthquakes in the geologic record and assessing seismic risk in active fault environments. Cooperative course taught by UI, open to WSU students.

445 Astrobiology 3 Prereq completion of biological and physical science GER and junior standing. Origin, evolution, distribution and future of life in the universe; fundamental concepts of life and habitable environments on Earth and other planetary bodies with in and outside of the solar system. Credit not granted for both Geol 445 and 545. Cooperative course taught by UI (Geol 444), open to WSU students.

451 Pedology 3 (2-3) Prereq SoilS 201. Same as SoilS 451.

459 Geodynamics 3 Prereq permission of instructor. Dynamics, movement, and deformation of the earth's lithosphere, asthenosphere, and mantle; emphasis on deformation processes and constraints derived from investigation of active tectonics using geophysics, seismology, geodesy, and structural geology. Credit not granted for both Geol 459 and 559. Cooperative course taught jointly by WSU and UI (Geol 459/559).

467 Volcanology 3 (2-3) Prereq Geol 320; Geol 356. Volcanic process, eruption mechanisms, volcanic deposits, hazard assessment. Field trip required. Credit not granted for both Geol 467 and 567. Cooperative course taught jointly by WSU and UI (Geol 467).

470 Introduction to Economic Geology 4 (3-3) Prereq Geol 340, 350. Genesis, evolution and tectonic setting of ore deposits combining theory, description, and detailed hand specimen analysis. Field trip to major mining districts. Cooperative course taught by WSU, open to UI students (Geol 470).
518 Geomicrobiology 3 Graduate-level counterpart of Geol 418; additional requirements. Credit not granted for both Geol 418 and 518. Cooperative course taught by UI (Geol 518); open to WSU students.

520 Advanced Topics in Sedimentary Rocks 3 (2-3) Prereq Geol 340. Graduate-level counterpart of Geol 405; additional requirements. Credit not granted for both Geol 405 and 505.

523 Advanced Topics in Stratigraphy 3 May be repeated for credit. Prereq Geol 421. Cooperative course taught by WSU, open to UI students (Geol 523).

525 Carbonate Depositional Systems 3 (2-3) Prereq Geol 320. Modern carbonate environments and processes; ancient carbonate rock sequences; carbonate platform-to-basin transition; diageneric rock. Field trip required. Cooperative course taught by WSU, open to UI students (Geol 525).

529 Geologic Development of North America 3 Prereq Geol 310, 421. Tectonic, magnetic, and sedimentary sequence studies of North American continent through time; concepts of metal and petroleum enrichment related to time and geological processes. Field trip required. Cooperative course taught by UI (Geol 532), open to WSU students.

533 Advanced Vadose Zone Hydrology 2 Prereq Soils 413. Same as Soils 533.

539 Orogenic Systems II 3 Prereq Geol 340. The tectonic evolution of western North America is examined in the field. Field trip required and a research paper. Cooperative course taught jointly by WSU and UI (Geol 539).

540 Tectonics 3 Prereq Geol 340. Nature and origin of the Earth's major tectonic features. Cooperative course taught by WSU, open to UI students (Geol 540).

541 Structural Analysis 3 (2-3) Prereq Geol 340. Structural analysis of complexly deformed rocks in orogenic belts. Field trip required. Cooperative course taught by WSU, open to UI students (Geol 541).

542 Geomechanics 3 Prereq Phys 102, Math 171. Concepts of linear elastic fracture mechanics as applied to the classification, origin and evolution of all types of rock fractures; continuum theory in rock mechanics; rock strength and failure criteria; stress tensors; elasticity. Field trip required. Cooperative course taught by UI (Geol 542), open to WSU students.

545 Astrobiology 3 Graduate-level counterpart of Geol 445; additional requirements. Credit not granted for both Geol 445 and 545.

546 Fault Mechanics 3 Prereq Geol 340. Examination of fault mechanics; internal fault architectures; fault slip distributions; relationship to rock properties; chelon fault systems, as well as earthquake behavior and seismic hazard recognition. Field trip required. Cooperative course taught by UI (Geol 546), open to WSU students.

550 Advanced Mineralogy 3 Prereq Geol 340, Geol 455. Elements of crystal chemistry and crystal physics. Cooperative course taught by WSU, open to UI students (Geol 550).

552 X-ray Analysis in Geology 3 (2-3) Generation and use of X-rays for geological research; electron microprobe/SEM, X-ray fluorescence and X-ray powder diffraction. Cooperative course taught by WSU, open to UI students (Geol 552).

554 Physical Petrology 3 Prereq Geol 356. The applications of continuum mechanics and fluid dynamics to the generation, rise, storage, and eruption of magmas. Cooperative course taught by UI (Geol 554), open to WSU students.

557 High-Temperature Aqueous Geochemistry I 3 (2-3) Prereq Chem 331, Geol 582; or by interview only. Application of solution chemistry to hydrothermal solutions; Eh-pH, log f(O2) -pH, activity - activity diagrams; estimation techniques; water structure; metal complexation; solubility, transport and deposition; equilibrium speciation; geothermal fields; experimental methods; activity coefficients. Field trip required. Cooperative course taught by UI (Geol 557), open to WSU students.

558 High-Temperature Aqueous Geochemistry II 3 Prereq Chem 331, Geol 557, 582; or by interview only. Expands on topics covered in Geology 557 through seminar format; selected readings from primary literature followed by presentations and discussions in class. Cooperative course taught by UI (Geol 558), open to WSU students.

559 Geodynamics 3 Prereq permission of instructor. Graduate-level counterpart of Geol 439; additional requirements. Credit not granted for both Geol 439 and 559. Cooperative course taught jointly by WSU and UI (Geol 559).

560 Advanced Igneous Petrology 3 (2-3) Origin, evolution, and tectonic significance of igneous rocks. Field trip required. Cooperative course taught by WSU, open to UI students (Geol 560).

563 Igneous Petrogenesis 3 (2-3) Prereq Geol 356. Chemical and petrologic techniques used to interpret the origin and evolution of igneous rocks. Cooperative course taught by WSU, open to UI students (Geol 563).

565 Biogeochemistry and Global Change 4 (3-3) Survey of how life affects the chemistry of the surface of earth.
567 Volcanology 3 (2-3) Prereq Geol 356. Eruption mechanisms, volcanic processes and landforms, hazard assessment, and volcanic deposits. Field trips required. Credit not granted for both Geol 467 and 567. Cooperative course taught jointly by WSU and UI (Geol 567).

569 Field Methods in Hydrogeology 2 (1-3) Prereq Geol 475; Geol 577 or 579. Theory and practice of acquisition of hydrogeologic data, emphasizing design and execution of field experiments.

570 Advanced Topics in Hydrogeology V 1-4 May be repeated for credit; cumulative maximum 9 hours. Prereq Geol 475. Topics may include organic/inorganic contaminant fate, recharge, carbon cycling, isotope applications. Cooperative course taught by WSU, open to UI students (Geol 571).

574 Remote Sensing and Geospatial Analysis 3 (1-4) Prereq Soils 374; 476 or equivalent. Same as Soils 574.

576 Fundamentals of Modeling Hydrogeologic Systems 3 Prereq Math 275; permission of instructor. Development and application of models representing physical systems, with emphasis on groundwater flow; basic equations of potential flow; properties assignment; parameter sensitivity; dimensional analysis. Cooperative course taught by UI (Hyd 576), open to WSU students.

577 Advanced Groundwater Hydraulics 3 Prereq Geol 475, Math 315. Same as C E 577.

578 Groundwater Geobiology 3 (2-3) Prereq graduate standing. Interaction of groundwater geology and the environment including microbial populations with emphasis on microbial transport in the sub-surface and bioremediation approaches.

579 Groundwater Geochemistry V 2-4 May be repeated for credit; cumulative maximum 4 hours. Prereq Chem 331, Geol 475. Organic and inorganic aqueous geochemistry; controls on groundwater contaminant fate. Cooperative course taught by WSU, open to UI students (Hydro 566).

583 Radiogenic Isotopes and Geochronology 3 Prereq Chem 105 and 106; Geol 480 or by permission. Graduate-level counterpart of Geol 483; additional requirements. Credit not granted for both Geol 483 and 583. Cooperative course taught jointly, open to UI students (Geol 483).

584 Stable Isotope Geochemistry 3 Principles and applications of isotope geochemistry in the geological sciences. Cooperative course taught by WSU, open to UI students (Geol 584).

588 Methods in Radiogenic Isotope Geochemistry 3 (1-6) Prereq Geol 480: Geol 583. Laboratory-based course in modern analytical methods in radiogenic isotope geochemistry.

592 Advanced Topics in Structural Geology V 1-4 May be repeated for credit; cumulative maximum 6 hours. Advanced topics across normal subject boundaries. Cooperative course taught by WSU, open to UI students (Geol 592).

595 Advanced Topics in Geology V 1-4 May be repeated for credit; cumulative maximum 6 hours. Topics of current interest in geology.

596 Advanced Topics in Geology V 1-4 May be repeated for credit; cumulative maximum 6 hours. Topics of current interest in geology.

597 Advanced Topics in Geology V 1-4 May be repeated for credit; cumulative maximum 6 hours. Topics of current interest in geology.

598 Seminar 1 May be repeated for credit; cumulative maximum 3 hours. Credit not granted for both Geol 498 and 598. Prereq major in Geol or related field. Graduate-level counterpart of Geol 498; additional requirements. S, F grading.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

School of Economic Sciences

www.ses.wsu.edu

Hubert 101
509-335-5555


The School of Economic Sciences (SES) offers programs leading to the degrees of Bachelor of Arts in Economics; Bachelor of Science degrees in Environmental & Resource Economics & Management; Agricultural Economics & Management; and Agribusiness Economics and Management; Master of Arts in Applied Economics; Doctor of Philosophy (Economics and Agricultural Economics); and to a Graduate Certificate in Agribusiness.

Bachelor’s Programs

The courses of study for the economics and related majors are sufficiently flexible to accommodate students with a variety of career interests, including business, law, government, education, public administration, and general economics. These undergraduate majors also provide excellent preparation for graduate study in many fields, such as business, law, and economics. Courses of study in the economics majors allow sufficient time for electing courses outside the school while meeting all unit requirements and General Education Requirements.

The undergraduate programs are designed to provide the basic knowledge and tools necessary to secure professional positions in a wide range of industries and public organizations. The economics degree provides a deep understanding of basic economic forces, thus giving students fundamental analytical skills for a broad range of career paths. The remaining degrees develop and build upon a solid foundation in economics and decision-making and are structured to lead to more focused professional careers. Environmental and resource economics and management deals with the economics of environmental policy and sustainable management required to make rational decisions concerning such areas as forest management, water use, pollution, land use, fisheries, and hazardous wastes. Agricultural economics and management deals with economic issues related to food and fiber supply and demand and the natural resource base that supports agricultural production and societal needs. Applications to public decision making and private decisions of farms, ranches, and agribusinesses are considered. Agribusiness deals more specifically with the business management activities of firms which move agricultural products to final consumers and provide production inputs, such as fertilizer and money, to farms and ranches.

In economics, students study the allocation of resources between competing and alternative uses. Macroeconomics analyzes the level of output and prices, inflation, and unemployment. Microeconomics emphasizes how consumers make purchase decisions and how they use their time, how firms make decisions on what to produce and who to employ, often focused on applied topics such as health care, sports or transportation economics. Both macroeconomics and microeconomics often deal with international issues.

In agricultural economics and management, students learn to use economic concepts along with technical production information to solve problems of farms, ranches, and related organizations. They also obtain knowledge and skills needed to solve broader economic and social problems facing agriculture and society. In agribusiness, students learn to use economic and business concepts and management tools to effectively function in firms and organizations that comprise the agribusiness sector. Knowledge and skills in management, marketing, and finance are developed with emphasis on the specialized requirements of the agribusiness community.

In environmental and resource economics and management, students learn to make decisions while carefully weighing the trade-offs between protecting, restoring, developing, and allocating natural resources for the greatest benefit to society. Students in all four degree programs combine courses from SES with technical and career electives that strengthen their preparation for productive careers. Many choose to include business, entrepreneurship, and accounting courses. Others focus on agricultural production courses. Still others emphasize political science and public policy.

A wide variety of courses is available to non-majors who want to take selected courses to support
their programs in other departments. Students from other departments may declare a minor in any of these program areas. The school also offers a minor in Sustainable Development.

**Transfer Students**

Students planning to transfer to Washington State University from other institutions should take courses that meet the 100- and 200-level course requirements in economics, mathematics, accounting, English, speech, and General Education Requirements. Students planning to transfer into one of these majors by the end of their sophomore year should have completed the introductory economics courses and 200-level mathematics courses if they plan to complete the required work for a degree in two additional years.

**Preparation for Graduate Study**

Students who plan to pursue graduate or professional education beyond the bachelor's degree should consult their advisors as early as possible to develop study programs directed toward their goals. Better graduate programs in economics and agricultural economics programs, especially PhD programs, expect calculus through vector calculus (Math 171, 172, 273), linear algebra (Math 220), mathematics for economics (Econ 408), and econometrics (Econ 311). Students planning to pursue graduate study in economics are urged to select an appropriate program of study, including a self-designed additional 15 hours, in consultation with a member of the faculty of the School of Economic Sciences.

Students planning graduate study, whether in economics, agricultural economics, law, business, or public administration, are advised to develop strong skills through courses in English composition and additional work in statistics. Recommendations for specific graduate areas include:

- Law School: Acctg 230; B Law 210; Pol S 300; and, depending on legal interests, elective Econ courses from the following: Econ 322, 324, 327, 423, 425, 451; B Law 410, 411 suggested.
- Business School: Acctg 230, 231; MIS 250. Additional courses in business are not required for admission to most graduate schools of business. It might be useful, however, to take introductory courses in the major areas of business: B Law 210, Fin 325, MgtOp 301, MgtOp S 340, Mktg 360, Econ 352 and Econ S 452.
- Economics and Agricultural Economics: Math 171 and 220 are recommended to satisfy the major's math requirements. Calculus through Math 273 and Econ S 408 are also useful.

**Program in Sustainable Development**

*Interim Director, M. Nziramasanga.*

The Program in Sustainable Development addresses how economic and social systems interact with major resource and environmental issues, both internationally and domestically. This is an interdisciplinary program with participation by the departments of Architecture, Economics, Environmental Science and Regional Planning, International Business, Natural Resource Sciences, and Sociology. The program is built on the premise that as a society we have a responsibility to ourselves and to future generations to steward resources in ways that foster long-term environmental and socio-cultural health and economic viability for all peoples.

**Employment Opportunities**

Graduates from each of these degree programs find employment in private industry, in government agencies, and with universities. Opportunities to work in foreign countries are also available.

The undergraduate programs are designed to provide the basic knowledge and tools necessary to secure professional positions in a wide range of industries and public organizations. A number of students take graduate work to broaden their career opportunities. Economics majors compete favorably with business majors for jobs in government, business and charitable organizations, using their strong analytical skills to offer a different perspective for problem-solving and decision-making.

Agricultural economics and management and agribusiness graduates find a wide variety of career opportunities such as financial officers and analysts, market analysts, professional farm managers, field representatives and managers of agribusiness firms, economists for state and federal agencies, farm operators, county agricultural agents, private consultants, and foreign agricultural specialists. Environmental and resource economics and management graduates find career opportunities in such positions as conservation managers, consultants, energy analysts, financial and market analysts for natural resource-based firms; as advocates and lobbyists for environmental groups; and as economists, environmental auditors, environmental compliance officers, legislative and policy analysts for state, local, and federal governments.

**Schedules of Studies**

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

**AGRBUSINESS ECONOMICS AND MANAGEMENT REQUIREMENTS (120 HOURS)**

The Bachelor of Science in Agribusiness Economics and Management has been developed for the student who wants to specialize in agribusiness management. Emphasis is placed on the principles of management, marketing, and finance as they apply to the agribusiness sector. The program requires in-depth inquiry into the various management, marketing, and financial decision-making tools. Enough flexibility exists to permit an integrated complement of courses. Students should consult their faculty advisors for the appropriate sequencing of courses as well as for the selection of electives that best suit their needs and interests.

Graduates with a B.S. in Agribusiness Economics and Management will be able to: (1) understand basic concepts and quantitative methods underlying applied economic analysis; (2) use applied economic analysis to identify problems and analyze alternative solutions involved in business, government, or social problems; (3) analyze the impacts and nature of alternative policies and decisions on economic and social outcomes; (4) understand basic business concepts in management, marketing, and finance for appropriate application in the agribusiness sector; (5) critically integrate quantitative and analytical methods in decision making and problem solving for economic and social issues; and (6) communicate effectively with both verbal and written skills.

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Footnotes
1. All three science GER courses must total 10 credits.
2. At least one elective must satisfy the American Diversity [D] GER.
3. Consult advisor.

AGRICULTURAL ECONOMICS AND MANAGEMENT REQUIREMENTS
(120 HOURS)

This degree is designed for the student who wants to learn how to apply sound economic and management principles to agriculture. Students learn concepts and develop skills for solving problems related to food and fiber supply and demand, making profitable farm and ranch decisions, and managing the natural resource base that supports agricultural production and other needs of society. Students should consult their faculty advisors for the appropriate sequencing of courses as well as for the selection of electives that best suit their needs and interests.

Graduates with a B.S. in Agricultural Economics and Management will be able to: 1) understand basic concepts and quantitative methods underlying applied economic analysis; 2) use applied economic analysis to identify problems and analyze alternative solutions involved in business, government, or social problems; 3) analyze the impacts and nature of alternative policies and decisions on economic and social outcomes; 4) have a fundamental understanding of management practices for application within the agricultural production sector; 5) critically integrate quantitative and analytical methods in decision making and problem solving for economic and social issues; and 6) communicate effectively with both verbal and written skills.

First Year
First Term
EconS 101 [S] or 102 [S] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] or 111 [A] (GER) 3
Math 201 3
Tier I Science [B,P,Q] (GER) 3 or 4

Second Term
Biological Sciences [B] (GER) 3 or 4
ComSIt 102 [C] or 324 [C] (GER) 3
EconS 101 [S] or 102 [S] (GER) 3
GenEd 110 [A] or 111 [A] (GER) 3
Math 202 [N] (GER) 3

Second Year
First Term
Arts & Humanities [H,G] (GER) 3
EconS 301 3
Intercultural Studies [L,G,K] (GER) 3
Physical Sciences [P] (GER) 3 or 4
Elective 3

Second Term
Acctg 230 3
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
EconS 302 3
Stat 212 [N] (GER) or MgtOp 215 4
Technical/Career Electives 3
Complete Writing Portfolio

Third Year
First Term
EconS 311 3
EconS 350 or 352 3
EconS 351 3
Electives 6

Second Term
EconS 450 or 452 3
EconS Elective 3
Social Sciences [S,K] (GER) 3
Technical/Career Electives 3
Elective 3

Fourth Year
First Term
EconS 451 3
EconS 497 3
EconS Elective 3
Engl 402 [W] (GER) 3
Technical/Career Electives 3

Second Term
EconS 454 3
EconS 490 3
Tier III Course [T] (GER) 3
Electives 5

Footnotes
1. All three science GER courses must total 10 credits.
2. At least one elective must satisfy the American Diversity [D] GER.
3. Consult advisor.

ECONOMICS REQUIREMENTS (121 HOURS)
The B.A. in Economics is designed to provide basic knowledge and analytical tools needed to secure professional positions in a wide range of industries and public and government organizations. Graduates with the B.A. in Economics will be able to: 1) understand the basic concepts and quantitative methods underlying applied economic analysis; 2) use applied economic analysis to identify problems and analyze alternative solutions involved in business, government, or social problems; 3) analyze the impacts and nature of alternative policies and decisions on economic and social outcomes; 4) practice appropriate applications to general policy and business decision making; 5) critically integrate quantitative and analytical methods in decision making and problem solving for economic and social issues; and 6) communicate effectively with both verbal and written skills.

First Year
First Term
EconS 101 [S] or 102 [S] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] or 111 [A] (GER) 3
Math 201 3
Tier I Science [B,P,Q] (GER) 3 or 4

Second Term
Biological Sciences [B] (GER) 3 or 4
ComSIt 102 [C] or 324 [C] (GER) 3
EconS 101 [S] or 102 [S] (GER) 3
GenEd 110 [A] or 111 [A] (GER) 3
Math 202 [N] (GER) 3

Second Year
First Term
Arts & Humanities [H,G] (GER) 3
EconS 301 3
Intercultural Studies [L,G,K] (GER) 3
Physical Sciences [P] (GER) 3 or 4
Elective 3

Second Term
Acctg 230 3
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
EconS 302 3
Stat 212 [N] (GER) or MgtOp 215 4
Technical/Career Electives 3
Complete Writing Portfolio

Second Year
First Term
EconS 302 [C] or 324 [C,M] (GER) 3
EconS 301 3
Intercultural Studies [L,G,K] (GER) 3
Physical Sciences [P] (GER) 3 or 4
Social Sciences [S,K] (GER) 3

Second Term
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
EconS 302 3
Stat 212 [N] (GER) or MgtOp 215 3
EconS Electives 3
Electives 3

Complete Writing Portfolio

Third Year
First Term
EconS 311 3
EconS Option Electives 6
Electives 6

Second Term
EconS Electives 6
EconS Option Elective 6
Electives 3

Fourth Year
First Term
EconS 497 or 499 3
EconS Elective 3
EconS Option Elective 3
Engl 402 [W] (GER) 3
Electives 3

Second Term
EconS 490 [M] 3
Tier III Course [T] (GER) 3
Electives 9

Footnotes
1. Acceptable alternatives are Math 140, 171, 202, or 206.
2. At least one elective must satisfy the American Diversity [D] GER.

ENVIRONMENTAL AND RESOURCE ECONOMICS AND MANAGEMENT
(120 HOURS)
This degree offers in-depth study of economic and management decision tools and applications for environmental policy, sustainable resource management, and the regulatory process. Students develop entrepreneurial skills for integrating sound environmental and resource management into day-to-day business decisions. The flexibility of this degree enables students to prepare for a wide range of career options and advanced educational opportunities. Students should consult their faculty advisors for the appropriate sequencing of courses as well as for the selection of electives that best suit their needs and interests.

Graduates with the B.S. in Environmental and Resource Economics and Management will be able to: 1) understand basic concepts and quantitative methods underlying applied economic analysis; 2) use applied economic analysis to identify problems and analyze alternative solutions involved in business, government, or social problems; 3) analyze the impacts and nature of alternative policies and decisions on economic and social outcomes; 4) critically integrate quantitative and analytical methods in decision making and problem solving for economic and social issues; and 6) communicate effectively with both verbal and written skills.
Economic Sciences

the impacts and nature of alternative policies and decisions on economic and social outcomes; 4) have a fundamental understanding of management practices for application to environmental and resource management issues; 5) critically integrate quantitative and analytical methods in decision making and problem solving for economic and social issues; and 6) communicate effectively with both verbal and written skills.

First Year

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Second Year

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Footnotes
1 All three science GER courses must total 10 credits.
2 At least one elective must satisfy the American Diversity [D] GER.
3 Consult Advisor. Technical/Career electives enhance the focus of the degree.

Minors

Agricultural Economics and Management or Agribusiness

A minor is offered in agricultural economics and management which requires that a student complete 16 hours of course work in the School of Economic Sciences, of which 12 hours must be in 300-400-level courses. 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Students must also complete one of three junior-senior program sequences, e.g., farm management, marketing or agribusiness management. A minor in agribusiness requires EconS 351 and 451; 335; 352 and 452; and enough additional EconS electives to total 18 hours of course work in the School. A student wishing to declare a minor should consult with an advisor as early as possible to develop the required program.

Economics

To be eligible to certify in an economics minor, students must have a cumulative 2.0 GPA. A minor in economics requires 18 hours of EconS courses, nine of which must be at the 300-400-level with an overall 2.0 GPA in the required courses and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. EconS 101 or 198, 102, and 302 or 320 are required. In addition, EconS 305, one 300-level or higher EconS elective and one 400-level or higher EconS elective are required (only three hours of EconS 497 or 499 may be used to fulfill the upper-division EconS elective requirement). Only EconS 497 or 499 may be taken pass, fail.

Environmental and Resource Economics and Management

The minor in Environmental and Resource Economics and Management requires 16 hours. The following courses are required: EconS 330, 431, 432 or 433; EconS 301 or 305 or 326; and 4 elective credits in EconS. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. A student wishing to declare a minor should consult with an advisor as early as possible to develop the required program.

Sustainable Development

The program offers a minor in sustainable development. The minor is comprised of EconS 326, one course from each of the following four aspect areas: policy, history, theory; environmental; social/cultural; economic; and one additional course from any of the aspect areas. The minor requires 18 credit hours, with at least 9 hours at the 300-400 level taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. All coursework for the minor must be graded and a minimum GPA of 2.0 shall be maintained. Students interested in the minor should consult with an advisor in one of the participating departments for an approved course listing. Students wishing to apply for the minor may do so with the Department of Economics.

Description of Courses

Economic Sciences Courses

EconS

101 [S] Fundamentals of Microeconomics

3 Prereq course equivalent to Math 101 or equivalent Math Placement score. Theory and policy of human responses to scarcity; how this affects business competition, international trade, industrial organization, investment, and income distribution.

102 [S] Fundamentals of Macroeconomics

3 Prereq Course equivalent to Math 101 or equivalent Math Placement score. Theory and policy related to unemployment, inflation, foreign trade, government spending, taxation, and banking.

198 [S] Economics Honors

3 Introduction to economic theory and policy issues. Open only to students in the Honors College.

260 Introduction to Environmental and Resource Law

1 American law and legal systems; relationships among legal processes, economic principles, and environmental concerns. Course equivalent to OSU’s ARES 260.

301 Intermediate Microeconomic Theory

3 Prereq EconS 101; Math 171 or 202. Calculus-based intermediate microeconomic theory for majors in the School of Economic Sciences.

302 Intermediate Macroeconomic Analysis

3 Prereq EconS 102; Math 171 or 202. Income, employment, and inflation theory with policy implications.

305 Theory of the Firm and Market Policy

3 Prereq EconS 101. Price determination and market behavior under different market structures and the problems posed for public policy; not calculus-based.

311 Introductory Econometrics

3 Prereq EconS 101; EconS 102; Stat 212 or MgtOp 215; Math 202. Methods of empirical analysis in the context of economic analysis and forecasting problems. Credit not granted for both Econ 311 and 411.

320 Money and Banking

3 Prereq EconS 102. Analysis of banking institutions and monetary policy in the US, with comparison to abroad.

321 Economics of Sports in America

3 Prereq EconS 101; junior standing. Economic aspects of American sports; fan demand; advertising; team output decisions; league/conference organization; government and sports.
322 [M] Public Economics 3 Prereq EconS 101. Theory and practice of the public sector; taxes, expenditures, and administration at local, state, and federal levels.

323 Labor Economics 3 Prereq EconS 101. Functioning of labor markets; introduction to collective bargaining and labor law.

324 [M] The Economics of Health Care 3 Prereq EconS 101. The economics of allocating, financing and delivering medical care services. Cooperative course taught by WSU, open to UI students (Econ 450).


326 Aspects of Sustainable Development 3 Prereq junior standing. Ecological, economical, and sociological aspects of sustainable development.

327 International Trade and Finance 3 Prereq EconS 102. Analysis and description of international trade flows; commercial policy; multinational firms, foreign exchange markets; open economy macroeconomics; international monetary systems.

330 Natural Resource Economics 3 Prereq EconS 101. The role of economics in natural resource management and policy. Course equivalent to OSU's AREC 351.

335 Business Finance Economics 3 Prereq Acctg 230; EconS 101; Math 107 or 201; either Stat 212 or MgtOp 215. Financial management, decision making, and analysis for small businesses; capital market institutions and valuation processes.

350 Introduction to Farm and Ranch Management 3 Prereq EconS 101. Decision making, planning, implementation and control of farms and ranches using economic principles, records, financial reports, budgeting and investment analysis.

351 Introduction to Food and Agricultural Markets 3 Prereq EconS 101. Introduction to futures and options; selected topics related to markets for and the marketing of food and agricultural products.

352 Business Management Economics 3 Prereq EconS 101. Introduction to the economic concepts, techniques and applications of organizational, marketing, financial, operations, and resource management in a firm. Cooperative course taught jointly by WSU and UI (AgEc 391).


361 Farm and Natural Resources Appraisal 3 Prereq EconS 101; EconS 102; EconS 350. Factors affecting value of land; valuation for loans, sales, assessment, and condemnation. Field trips required. Cooperative course taught by UI (AgEc 361), open to WSU students.

391 Special Topics in Economics V 1-3 Prereq EconS 101 and 102. Current topics in economics.

404 Economics for Managers 3 Permission of Vancouver or Tri-Cities MBA coordinator or the academic coordinator in the School of Economic Sciences required. Topics in the application of economics for business decision making with an introduction to calculus. Credit not granted to graduate students in the School of Economic Sciences.

407 Decision Analysis in Economics 3 Prereq EconS 301; EconS 311; EconS 330. Decision analysis tools for economics and agribusiness; linear, nonlinear, integer programming; transportation, assignment, inventory, input-output models. Credit not granted for both EconS 407 and 507.

416 Economics in Transition 3 Prereq EconS 102. Key institutions, policies, and economic performance of different economic systems; transition of new economies in Eastern Europe; capitalism as a global system.

420 Monetary Theory and Policy 3 Prereq EconS 320. Current issues in monetary economics with a special emphasis on policy.


425 Industrial Organization 3 Prereq EconS 301; EconS 311. Economic theories of firm behavior and the influence of market industry parameters; buyer/seller concentration, information asymmetries, product differentiation, and entry conditions.

426 Transportation Economics 3 Prereq EconS 305. Transportation economics and relevant transportation modeling; policy issues and concerns.


428 [T] Global Capitalism Today: Perspectives and Issues 3 Prereq GenEd 111; EconS 101 or 102. Logic and consequences of capitalism as global system; multinational corporations; underdevelopment and overdevelopment; external debt, population, and environmental crisis.

430 [T] Managing the Global Environment 3 Study of policy and management tools to address environmental issues of global significance.

431 Economic Analysis of Environmental Policies 3 Prereq EconS 301; EconS 311; EconS 330. Nature and practice of environmental policy analysis using economics concepts and tools including benefit cost, social indicators and environmental accounts. Credit not granted for both EconS 431 and 531.

432 [M] Natural Resource Economics and Policy 3 Prereq EconS 301 or permission of instructor. Economic principles and models applied to natural resource problems, issues, and policies. Credit not granted for both EconS 432 and 532.

433 Topics in International Environmental Law, Policy and Institutions 3 Prereq permission of instructor. Interdisciplinary study of the political development of the European Union and its impact on modern Italy; natural resource, environmental and agricultural policy and law.


451 [M] Advanced Agricultural Marketing 3 Prereq EconS 301 or 305; EconS 351; Math 202 or 171; Stat 212 or MgtOp 215. Institutions, practices, policies, and problems in agricultural input and output marketing.

452 [M] Advanced Business Management Economics 3 Prereq EconS 301; EconS 352; Math 171 or 202; MgtOp 215 or Stat 212. Topics in business management economics and strategy, from demand and supply to bargaining, contracting, pricing strategies, and market structure.

453 International Trade and Marketing 3 Prereq EconS 301; EconS 311. Application of economic theory to the analysis of international trade and marketing. Credit not granted for both EconS 453 and 553.


455 [T] Growth and Change in the American West 3 Prereq EconS 101. American West development showing how the geography and culture of the West have interacted with technical, economic, and institutional change to shape the western economy.

483 Special Topics: Study Abroad V 1-15 May be repeated for credit.

490 [M] Economics Capstone 3 Prereq Senior in School of Economic Sciences; EconS 301; EconS 302; EconS 311. Integration of economic theory and field courses; assessment.

491 Advanced Topics in Economics V 1-3 Prereq EconS 301, 302 and 311. Advanced topics in economics.

495 Instructional Practicum V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq by interview only. Academic experience in teaching and tutoring undergraduate courses in economics. S, F grading.
511 Econometrics I 3 Prereq EconS 504; EconS 510; EconS 513. Constrained estimation, testing hypotheses, bootstrap resampling, BM estimation and inference, nonparametric regression analysis, and an introduction to Bayesian econometrics.

521 Topics in Economic Sciences V 1-3 May be repeated for credit; cumulative maximum 12 hours. S, F grading.

525 Master's Econometrics 3 Prereq 3 hours in statistics. Theory and practice of multiple regression methods; applications to the study of economic and other phenomena; use of computer regression programs. Cooperative course taught by UI (AgEcon 525); open to WSU students.

526 Master's Microeconomic Analysis 3 Prereq EconS 301 or 305; Math 171 or 202. Masters-level, calculus-based producer and consumer theory with selected managerial economics topics. Cooperative course taught by WSU, open to UI students (AgEcon Econ 526).

529 Research Methods 1 Prereq graduate standing. Social science Master's thesis as a research journey toward craftsmanship including elements of imagination, modeling, mindfulness, guidelines, and mentor experiences. Cooperative course taught by UI (AgEcon 529); open to WSU students.

531 Economic Analysis of Environmental Policies 3 Prereq EconS 301; EconS 311; EconS 330. Graduate-level counterpart of EconS 431; additional requirements. Credit not granted for both EconS 431 and 531. Cooperative course taught by WSU; open to UI students (Ag Econ 531).

532 Natural Resource Economics and Policy 3 Prereq EconS 301 or permission of instructor. Graduate-level counterpart of EconS 432; additional requirements. Credit not granted for both EconS 432 and 532. Cooperative course taught by WSU; open to UI students (Ag Econ 532).

533 International Trade and Policy 3 Prereq graduate standing. Economics of international trade and development with an emphasis on policy and research issues that arise from interaction of economic events in the world food economy. Cooperative course taught by UI (AgEcon 533); open to WSU students.

535 Agribusiness 3 Prereq graduate standing. Economic and strategic management theories and their relevance to agribusiness decision-making including empirical applications. Cooperative course taught by UI (AgEcon 535); open to WSU students.

536 Marketing Economics 3 Prereq EconS 526. Application of economic theory to topics in marketing and price analysis. Cooperative course taught by WSU; open to UI students (Ag Econ 536).

540 Production Economics 3 Prereq EconS 526. Production economics theory and methods applied to problems of production response, economic optimization, technology, policy, risk and dynamics.

553 International Trade and Marketing 3 Prereq graduate standing. Graduate-level counterpart of EconS 453; additional requirements. Credit not granted for both EconS 453 and 553.

555 Managerial Economics for Decision Making 3 Prereq admission to MBA program. Optimal economic decision making for business in a global environment. Not open to economics graduate students.
598 PhD Research Seminar 1 May be repeated for credit; cumulative maximum 4 hours. Prereq graduate standing. Seminar focusing on PhD students presenting their own research and critically assessing the research of other PhD students. S, F grading.

599 Special Topics in Economics 3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Department of Educational Leadership and Counseling Psychology

www.education.wsu.edu/elcp
Cleveland 351


The department offers courses of study leading to a Bachelor of Arts in Sports Management or Bachelor of Science in Kinesiology (with majors in athletic training, movement studies, and health and fitness education); and undergraduate minors in leadership studies and sport management. Masters degrees (Master of Education, Master of Arts in Education) are offered in the areas of educational leadership, higher education, counseling, educational psychology, and sport management. The Doctor of Philosophy (Education) is offered with specializations in educational leadership, higher education, student affairs, or counseling psychology. The Doctor of Education is offered with a specialization in educational leadership or higher education.

The Department of Educational Leadership and Counseling Psychology houses in the College of Education, has excellent facilities for undergraduate/graduate study and research. The department sponsors and hosts a number of state, national, and international programs. The Assessment and Evaluation Center serves schools districts and state agencies by providing high-quality assessment and evaluation services through grant and contract agreements. Programs for superintendent, principal and program administrator certification are available at the Pullman, Spokane, Tri-Cities and Vancouver campuses. A state-wide cohort-based superintendent program is also available. Educational Staff Associate (ESA) school counselor certification program is offered at the Pullman and Tri-Cities campuses. Also, a post-master's school psychology certification program is offered at the Spokane campus.

Application for Graduate Study

Students who plan to work toward an advanced degree should contact the Office of Graduate Studies in the College of Education. Individuals applying for admission to do graduate work must make application to the WSU Graduate School, and submit the following materials to the Department's Office of Graduate Studies: Departmental Application form; a statement of your professional objectives; official college transcripts; three (3) letters of recommendation from individuals qualified to comment on the applicant's academic and professional abilities; and see the program web page to determine if the desired graduate program requires completion of the Graduate Record Examination. Interested students should directly contact the Office of Graduate Studies for specific requirements of each program area.

Bachelor of Arts in Sport Management

The Department of Educational Leadership and Counseling Psychology offers a major in sport management which leads to a Bachelor of Arts in Sport Management. The sport management major provides professional preparation for those students wishing to pursue a management career with sport organizations or in sport businesses. Students must complete a core program in sport management and must select an area of specialization from business or communications. Additional information on the areas of specialization can be obtained from the department. A cumulative GPA of 2.5 is required for certification as a major.

The Sport Management curriculum is designed to enable our graduating students to: 1) incorporate an understanding of ethical, legal, and socio-cultural issues in managerial decision making and policy determinations in sport; 2) employ sound principles of strategic planning, financial management, risk management, and human resource management in sport; 3) apply a fundamental knowledge and practical understanding of sport marketing, communication, and event management principles; 4) utilize critical thinking and abstract reasoning skills in analyzing sport management issues and in managerial planning and decision making; and 5) demonstrate information literacy and oral, written, and group communication.

Practical application of theory and knowledge is obtained through enrollment in practicum hours during the junior and senior years and through the completion of a 10-12 credit internship at the end of the required coursework. The internship serves as the bridge between the student's college career and opportunities for employment in sport management.

The general prerequisite for enrollment in 300 and 400-level movement studies courses is 60 hours of coursework and certification as a kinesiology major. Students of junior or senior status in a certified major who require a 300- or 400-level movement studies course for their program will be allowed to enroll in the required course. Additional prerequisites for specific courses are listed in the course descriptions. The program director must approve any exceptions to these requirements.

Undergraduate Minors

The Department of Educational Leadership and Counseling Psychology offers undergraduate minors in Leadership Studies and Sport Management. Courses for the minor may not be taken pass, fail. Students interested in declaring a minor in leadership studies or sport management should contact the Department of Educational Leadership and Counseling Psychology.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

Bachelor of Science in Kinesiology

Three kinesiology majors in the Department of Educational Leadership and Counseling Psychology (athletic training, movement studies and health and fitness education) share kinesiology and health courses. Kinesiology is composed of a broad spectrum of courses designed to expose students to a variety of experiences, concepts, and philosophies centered on human movement. A grade of C or better must be obtained in all departmental core courses and in GER courses used as prerequisites for departmental courses. All letter-graded courses specifically required for each major must be taken for letter grade (i.e., not pass, fail). In addition, each major has a specialized curriculum designed to meet the requirements of the appropriate professional experience in which the student is interested. Students interested in health and fitness education must be admitted to the teacher preparation program (see admission requirements under Teaching and Learning).

Graduates in the kinesiology programs will be able to: 1) use knowledge of evidence and context to reason and reach conclusions as well as to innovate in imaginative ways; 2) analyze and communicate appropriately with mathematical and symbolic concepts; 3) use a disciplined and systematic approach to accessing, evaluating, and using information; 4) write, speak, and listen to achieve intended and meaningful understanding; 5) employ self-understanding and interact effectively with others of similar and diverse cultures, values, perspectives, and realities; and 6) hone a specialty for the benefit of themselves, their communities, their employers, and for society at large.

The general prerequisite for enrollment in 300 and 400-level movement studies courses is 60 hours of coursework and certification as a kinesiology major. Students of junior or senior status in a certified major who require a 300- or 400-level movement studies course for their program will be allowed to enroll in the required course. Additional prerequisites for specific courses are listed in the course descriptions. The program director must approve any exceptions to these requirements.

Undergraduate Minors

The Department of Educational Leadership and Counseling Psychology offers undergraduate minors in Leadership Studies and Sport Management. Courses for the minor may not be taken pass, fail. Students interested in declaring a minor in leadership studies or sport management should contact the Department of Educational Leadership and Counseling Psychology.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.
ATHLETIC TRAINING REQUIREMENTS (129 HOURS)

The athletic training education program is seeking continuing accreditation by the Commission on Accreditation of Allied Health Education Programs (CAAHEP). The athletic training major is designed to provide students with the necessary academic and clinical competency required to be certified by the National Athletic Trainers’ Board of Certification. All students majoring in athletic training will complete the kinesiology core, the athletic training major course work and 1200 hours of clinical internship experience.

Because of the intensity and availability of the clinical internship, the program admits a limited number of students. Acceptance into the clinical internship is required to certify in athletic training and to complete the degree requirements for graduation. Academic requirements for this application process include but are not limited to 1) completion or current enrollment in MvtSt 262, Ath T 266, and Ath T 267; 2) a 2.75 cumulative collegiate GPA at the time of application; and 3) current first aid, CPR, and AED credentials. Students are advised to consult with athletic training advisors early in their academic careers for specific application procedures.

Transfer students are welcome to apply for admission into the clinical internship prior to their attendance at WSU. Transfer students desiring admission into the clinical internship program must have been accepted to WSU, have completed the prerequisite course work, meet academic requirements and be of sophomore standing.

Applicants who do not meet the required 2.75 cumulative GPA requirement but have had a semester 2.75 GPA the last two semesters at WSU can complete the application process to be admitted into the clinical internship experience. Transfer students will also have to show two semesters at WSU with a 2.75 GPA to be eligible.

Clinical internship experiences combine the theory and management of sport-related injury/illness under the direct supervision of certified athletic trainers. The clinical internship is guided by progressive clinical competencies and technical standards that assess the student's progress. Twelve hundred hands-on clinical internship hours are arranged over six consecutive semesters with a parallel educational cooperative partnership involving the Department of Intercollegiate Athletics. Additional clinical experiences are available at high school and sport medicine facilities. Students are expected to maintain high academic standards and demonstrate progressive clinical competence to remain a part of the athletic training clinical internship experience.

Specific policies and procedures governing the clinical internship experience are available through athletic training advisors.

Kinesiology Core courses required for athletic training, health and fitness teaching, and movement studies: Ath T 311, HF 361, 484, MvtSt 199, 262, 264, 362, 380, 415, 461, Biol 251.

First Year

First Term

Engl 101 [W] (GER) 3  
MvtSt 199 3  
MvtSt 262 4  
MvtSt 264 3  
Psych 105 [S] (GER) 3

Second Term

Ath T 266 3  
Ath T 267 1  
Biol 102 [B] or 106 [B] (GER) 4  
ComSt 102 [C] (GER) 3  
Math 205 or [N] (GER) 3  
Soc 101 [S,D] (GER) 3  
Apply to Clinical Internship

Second Year

First Term

Ath T 466 3  
Ath T 291 3  
Chem 101 [P] (GER) 4  
GenEd 110 [A] (GER) 3  
HF 361 3  
MvtSt 313 3

Second Term

Ath T 270 3  
Ath T 275 3  
Ath T 291 3  
Ath T 311 3  
FSHN 130 [B] 3  
GenEd 111 [A] (GER) 3  
Complete Writing Portfolio

Third Year

First Term

Arts & Humanities [H,G] (GER) 3  
Ath T 271 3  
Ath T 364 [M] 3  
Ath T 390 or 391 3  
Ath T 392 3

Second Term

Ath T 390 or 391 3  
Ath T 469 [M] 3  
Ath T 392 3  
Intercultural Studies [I,G,K] (GER) 3  
MvtSt 362 3  
Psych 265 3

Fourth Year

First Term

Ath T 305 3  
Ath T 390 or 391 1  
Ath T 493 2  
Biol 251 4  
HF 263 2  
HF 484 3

Second Term

Ath T 365 3  
Ath T 493 2  
MvtSt 380 3  
MvtSt 461 3  
Tier III Course (GER) 3

Kinesiology Core courses required for athletic training, health and fitness teaching, and movement studies: Ath T 311, HF 361, 484, MvtSt 199, 262, 264, 362, 380, 415, 461, Biol 251.

First Year

First Term

Chem 101 [P] or 105 [P] (GER) 4  
Engl 101 [W] (GER) 3  
MvtSt 199 3  
PEACT 112 1  
Psych 105 [S] (GER) 3  
Math Prerequisite, if needed

Second Term

Arts & Humanities [H,G] (GER) 3  
Biol 102 [B] or 106 [B] (GER) 4  
Intercultural Studies [I,G,K] (GER) 3  
MvtSt 264 3  
PEACT Elective 1 1  
T & L 300 1

Second Year

First Term

Engl 201 [W] (GER) 3  
HF 361 3  
Math Proficiency [N] (GER) 3 or 4  
MvtSt 262 4  
T & L 301 2  
Certify in Education and Major

Second Term

Biol 251 4  
FSHN 130 [B] (GER) 3  
GenEd 110 [A] (GER) 3  
PEACT Elective 1 1  
Psych 230 3  
T & L 317 2  
Complete May Practicum

Complete Writing Portfolio

Third Year

First Term

Ath T 266 3  
GenEd 111 [A] (GER) 3  
HF 393 3  
HF 484 3  
MvtSt 481 3  
PEACT Elective 1 1

Second Term

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3  
MvtSt 362 3  
MvtSt 380 3  
MvtSt 461 3  
PEACT Elective 1 1  
Tier III Course [T] (GER) 3

Fourth Year

First Term

Ath T 311 3  
HF 481 3  
MvtSt 415 3  
T & L 464 1  
T & L 465 3  
T & L 466 2

Second Term

EdPsy 468 3  
HF 483 3  
T & L 467 3  
T & L 469 2  
T & L 470 3
### MOVEMENT STUDIES REQUIREMENTS (122 HOURS)

The Movement Studies major leads to the Bachelor of Science in Kinesiology. The major provides an interdisciplinary understanding of human movement through the study of anatomy, physiology, movement analysis, biomechanics, motor learning, exercise physiology, and sport psychology and ethics. In addition, students gain proficiency in four of five sport activity areas. Movement studies provides a foundation for personal training certification, health and fitness club employment, teaching, coaching, physical therapy, dance therapy, and sports medicine.

Because of the high demand for this program, students must meet minimum certification requirements, as listed below, in order to be admitted to the Movement Studies program. Applicants who meet the minimum requirements are eligible for consideration, but not assured admission. Enrollment is limited and admission competitive. Admission application deadlines are October 15, March 15, and August 5 with certification effective the following term. Candidates must complete formal admission procedures and be certified in the Movement Studies major prior to taking any 300- or 400-level Movement Studies, Athletic Training, or Health and Fitness courses. The following minimum criteria must be met for consideration for admission:

#### Minimum Criteria for Certification

1. Completion of at least 30 semester hours of coursework.
2. A cumulative GPA of 2.75.
3. A grade of C or better in each of the following courses: ComSt 102, Eng 101, and Math [N] GER.
4. A written statement (maximum of two pages) describing relevant work experience/involvement in extracurricular activities related to Movement Studies. This statement will be evaluated on the basis of the breadth and depth of the experiences, as well as for clarity of expression.

#### Minimum Criteria for Certification

**First Year**

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<tr>
<td>Engl 101 [W] (GER)</td>
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**Second Year**

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<td>Chem 101 [P] or 105 [P] (GER)</td>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>Ath T 266</td>
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**Third Year**

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<td>Biol 251</td>
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<td>HF 361</td>
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<td>MvtSt 313</td>
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<td>Soc 345</td>
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**Fourth Year**

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**Minimum Criteria for Certification**

1. Completion of at least 30 semester hours of coursework.
2. Minimum WSU cumulative GPA of 2.50.
3. A grade of C or better in each of the following courses: ComSt 102, Eng 101, Math [N] GER and SpMgt 276.
4. A written statement (maximum of two pages) describing relevant work experience/involvement in extracurricular activities. This statement will be evaluated on the basis of the breadth and depth of the experiences, as well as for clarity of expression.

**First Year**

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<tr>
<th>First Term</th>
<th>Hours</th>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>Tier I Science [Q] (GER)</td>
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**Second Year**

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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>Electives</td>
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**Third Year**

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<td>SpMgt 374</td>
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**Fourth Year**

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<td>SpMgt 491</td>
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Footnotes

1. PEACT electives are selected with advisor approval.

Minors

Leadership Studies

Students majoring in any academic area may also take a minor in Leadership Studies. The minor in Leadership Studies requires 18 semester hours, 13 of which must be from 300-400-level courses. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Students must earn credits from courses in the core curriculum and the supporting interdisciplinary curriculum approved for the minor. Students must complete 9 and no more than 12 core curriculum credits from the following: 6 credits from: Ed Ad 389, 440; 3 credits from: either Ed Ad 497, 498, or 499. In addition to the 9 credits from the core curriculum, students must earn the balance of the 18 credits from courses listed in the interdisciplinary supporting curriculum; choose 9 credits from: CES 301, 335, 495, ComSt 185, 235, 302, 334, 475, H D 205, Mgt 401, 450, Pol S 455, 456, W St 315. For more detailed information, visit education.wsu.edu/academics/fields/leadershipminor.

Sport Management

The minor in sport management requires 18 semester hours of course work and practical experience. The minor is designed for students with an interest in sport organizations or sport-related business. Sport management is an appropriate area for students with a variety of career interests, including business, communication, law, and social sciences. To be eligible to certify as a sport management minor a student must have earned at least 60 credit hours, have a minimum cumulative GPA of at least 2.5 and be certified in a major. Graded courses in the minor may not be taken pass/fail. The program director must approve any exceptions to these requirements. Required courses include SpMgt 276, 290, 365, and 377; and 6 hours from SpMgt 367 or Soc 345, SpMgt 394, 496, 497, 498. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

Description of Courses

Athletic Training Courses

Ath T

266 Care and Prevention of Athletic Injuries 3 Prereq MtSt 262 or c//. Prevention, recognition, and management of common sport related injuries and illnesses.

267 Techniques in Athletic Injuries 2 (1-2) Prereq MtSt 266 or c//. Applied clinical approach to basic skills commonly used in the field of athletic training.

270 Examination for Lower Extremity in Athletic Training 3 Prereq Ath T 266. In-depth study of the lower extremities including physical examination, injury recognition, treatment, taping, bracing and rehabilitation.

271 Examination for Upper Extremity in Athletic Training 3 Prereq Ath T 270. In-depth study of the upper extremities including physical examination, injury recognition, treatment, taping, bracing and rehabilitation.

275 (468) Athletic Training Modalities 3 Prereq Ath T 266. Advanced theory and techniques of modality use in athletic training.

291 (491) Athletic Training Clinical Internship I 2 (1-3) May be repeated for credit; cumulative maximum 6 hours. By interview only. Beginning techniques in management of sport injury/illness under supervision of a certified athletic trainer.

305 Nutrition Related to Fitness and Sport 3 Prereq FSHN 130 or 233. Identification of energy, macro/micro nutrient and fluid requirements during exercise; evaluation of dietary regimens and ergogenic aids for pre and post competition, weight maintenance, and wellness. Cooperative course taught by UI (FCS 305), open to WSU students.

311 Strength Training 3 Prereq MtSt 262. Basic information and guidelines for enhancement of athletic performance, injury prevention, rehabilitation and general fitness. Cooperative course taught by WSU, open to UI students (PEP 311).

364 (467) [M] Athletic Training Rehabilitation 5 Prereq Ath T 266. Advanced injury rehabilitation theory and techniques in athletic training.

365 (465) General Medical Aspects in Athletic Training 1 Prereq Ath T 266. Current medical issues pertaining to athletic training including sport pharmacology, physiological considerations, common illnesses and special concerns.

390 Athletic Training High School Practicum V 1-4 May be repeated for credit; cumulative maximum 8 hours. By interview only. Supervised practicum. S, F grading.

391 Athletic Training Sport Medicine Practicum V 1-4 May be repeated for credit; cumulative maximum 8 hours. By interview only. Supervised practicum. S, F grading.

392 (492) Athletic Training Clinical Internship II 2 (0-4) May be repeated for credit; cumulative maximum 6 hours. By interview only. Intermediate techniques in management of sport injury/illness under supervision of a certified athletic trainer.

411 Advanced Strength Training 3 Prereq Ath T 311. Advanced methods as they apply to the enhancement of athletic performance, injury prevention, rehabilitation and general fitness. Cooperative course taught by WSU, open to UI students (PEP 411).

412 Strength Training Practicum, Level I 3 (1-6) Prereq admission to strength training program. Entry-level practical experience in the Varsity Weight Room. S, F grading.


466 Athletic Training Evaluation 3 Prereq Ath T 266. Advanced injury evaluation theory and techniques in athletic training.

469 [M] Athletic Training Organization and Administration 3 Prereq Ath T 266. The organization and administration of athletic training programs.

490 Instructional Practicum V 1-4 May be repeated for credit; cumulative maximum 6 hours. S, F grading.

493 Athletic Training Clinical Internship III 2 (1-3) By interview only. Advanced techniques in management of sport injury/illness under supervision of a certified athletic trainer.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Counseling Psychology Courses

CoPsy

457 [T,D] Chicano/Latino Psychology 3 Prereq Psych 105, EdPsy 401, H D 101, Soc 101, or permission of instructor; completion of one Tier I and three Tier II courses. Same as CES 457.

490 Instructional Practicum V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 8 hours. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Historical and Philosophical Foundations of Counseling Psychology 3 Prereq admission to Counseling Psychology PhD program. History of counseling psychology; philosophical and psychological systems; current identity of counseling psychology as an academic discipline and a profession.

511 Theories, Research, and Techniques in Counseling Psychology I 3 Philosophical assumptions, theory of personality, counseling process, techniques and relevant research in the major theories of counseling and personality. Cooperative course taught by WSU, open to UI students (PUP 511).

512 Theories, Research, and Techniques in Counseling Psychology II 3 Prereq CoPsy 511. Advanced study of process techniques and outcome research in the field of counseling and psychotherapy; nonspecific process skills are presented and integrated into specific, empirically validated interviews. Cooperative course taught by WSU, open to UI students (PUP 512).

513 Career Counseling: Theories and Methods 3 Theories, concepts, methods and findings in career counseling; vocational assessment and prediction.
515 Ethics and Professional Problems in Counseling Psychology 3 Professional problems; ethical, legal, and training issues, practices, and new issues. Cooperative course taught by WSU, open to UI students (PEP 515).

516 Life Span Development and Counseling Issues 3 Prereq graduate standing. Major theories and issues in human development and their application to counseling practice including case conceptualization, treatment and intervention planning and psychological assessment and research.

518 Theoretical Foundations of Group Counseling 3 Prereq CoPsy 512 or c//, History, philosophy and theoretical foundations; the group counselor, members, and issues in group counseling. Cooperative course taught by WSU, open to UI students (PEP 518).

523 Topics in Counseling Psychology V 1-4 May be repeated for credit; cumulative maximum 8 hours. Recent research, developments, issues, and/or applications in selected areas of counseling psychology.

525 Counseling Diverse Populations 3 Prereq CoPsy 512. Research and theories regarding the influence of culture, gender, and lifestyle on counseling processes; application of appropriate assessment/treatment strategies. Cooperative course taught by WSU, open to UI students (PEP 525).

527 Individual Appraisal I 3 Prereq EdPsy 508, 509. Cognitive assessment of individuals, with an emphasis on the theoretical background and practical skills needed to administer, score, and interpret individual intelligence tests; assessment of learning disabilities, AD/HD, and individual achievement.

528 Individual Appraisal II 3 Prereq CoPsy 527. Interpretation of representative personality assessment inventories and symptom checklists used in counseling practice; integration of results in psychological reports.

529 Counselor Supervision: Theory, Research, and Practice 3 Prereq admission to Counseling Psychology PhD program. Survey of major theoretical approaches, techniques, and research in models of counselor supervision and training.


532 Current Issues in School Counseling II 3 Prereq CoPsy 531. Additional coverage of contemporary issues of concern to school counselors; comprehensive developmental school programs, school community dynamics, parental involvement, consultation.

533 Master's Internship in Community Counseling V 4-8 Prereq CoPsy 512, 513, 515; 527 or c//; or by interview only. Supervised experience in the application of counseling theory and techniques in an agency setting. May be repeated for credit; cumulative maximum 8 hours. S, F grading.

535 Master's Internship in School Counseling V 4-8 May be repeated for credit; cumulative maximum 8 hours. Prereq CoPsy 512, 513, 515; 515 or c//; 527 or c//; or by interview only. Supervised experience in the application of guidance and counseling theory and techniques in a school setting. S, F grading.

537 Professional Development in Counseling Psychology 3 NBCC requirements; growth and development, social and cultural foundations, the helping relationship, group dynamics, career, appraisal and research.

541 Clinical and Experimental Hypnosis Seminar 3 Prereq PhD student in counseling, educational, experimental, or clinical psychology. Clinical and experimental hypnosis, emphasizing applied research and clinical methods. Cooperative course taught by WSU, open to UI students (PEP 541).

542 Cross-cultural Research in Counseling and Assessment 3 Cross-cultural research methods, concepts, and findings in counseling and assessment.

551 Doctoral Practicum in Counseling Psychology I 1 (2-6) Prereq CoPsy 512, 513, 515, by interview only. Supervised experiences in the application of counseling psychology theory and techniques. S, F grading.

552 Doctoral Practicum in Counseling Psychology II 4 (2-6) Prereq CoPsy 551, by interview only. Supervised experiences in the application of counseling psychology theory and techniques. S, F grading.

553 Doctoral Practicum in Counseling Psychology III 2 (1-3) to 4 (2-6) May be repeated for credit; cumulative maximum 12 hours. Prereq CoPsy 552, by interview only. Supervised experiences in the application of counseling psychology theory and techniques. S, F grading.

561 Continuing Counseling ESA Certification V 2-6 Prereq Initial Counselor Certification; equivalent of 180 full days of school counselor experience. Peer review requirements for continuing level ESA Counselor Certification. May be repeated for credit; cumulative maximum 6 hours.

562 Advanced Hypnosis and Therapy 3 Prereq CoPsy 512, by permission. Advanced training emphasizing mind-body therapies and primary health care including hypnosis, biofeedback, and ego-state therapy. Cooperative course taught by WSU, open to UI students (PEP 562).

590 Seminar in Research in Counseling Psychology 3 By interview only. Recent developments in counseling psychology research and design applied to PhD dissertation proposals. S, F grading.

597 Counseling Psychology Internship V 2-4 May be repeated for credit; cumulative maximum 8 hours. Supervised internship experience, individual and group counseling, evaluation, assessment, supervision, and teaching. S, F grading.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

Educational Administration Courses

Ed Ad

389 Undergraduate Leadership Development 3 Basic leadership through skills, styles and conflict management, critical thinking, problem solving, organizational behavior, and leadership issues.

440 Principles of Service and Leadership 3 Prereq Ed Ad 389, senior standing. Individual and group opportunities to apply leadership skills, theory, and principles to a proposed service learning project.

490 Special Topics V 1-4 By interview only. May be repeated for credit; cumulative maximum 8 hours.

497 Peer Leadership V 1-4 May be repeated for credit. Development of leadership and interpersonal skills for specific peer leadership and paraprofessional positions. S, F grading.

498 Undergraduate Leadership Practicum V 1-4 Prereq Ed Ad 389 or c//. Weekly seminar; development of and reporting on significant project associated with a leadership position held by the student. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Philosophy of Education 3 Development of American educational philosophy.

503 Values and Ethics for Educational Leaders 3 Study of ethical theories, the moral dilemmas of public schooling, and the skills of ethical reasoning; professional code of ethics.

506 Social Context of Education 2 The interpretation of social context issues including historical, legal and cultural factors as these influence policies and practice in education.

507 Social Foundations of Education 3 Educational adaptations to the economic and social trends and forces.

510 Improvement of Instruction 3 Recent teaching experience. Analysis and evaluation of instructional models with emphasis on information processing; implications for changing teaching style.

511 Models of Teaching 2 Theoretical models and strategies of teaching in classrooms; relationships between specific models and curriculum priorities.
514 Basic Principles of Curriculum Design 2
or 3 Rec teaching experience. The application of theoretical concepts and approaches in the planning and design of curricula.

515 Curriculum Implementation 3 Rec
teaching experience. Research and practice; innovation and change in curricular organization emphasizing implementation.

516 Instructional and Curricular Leadership
2 or 3 Rec teaching experience. Theory, research, and practice of providing instructional and curricular leadership in schools and other educational settings.

518 Media Literacy and Educational Technology 3 Rec T & L 445 or 446. Relates research and theory of media literacy to instructional resources and current leadership practices; problems of planning and administering programs.

520 Seminar in Curriculum and Instruction
2 or 3 Rec teaching experience. Contemporary issues, analyses and developments of educational programs.

521 Topics in Education V 1-4 May be repeated for credit; cumulative maximum 6 hours. Recent research, developments, issues, and/or applications in selected areas of education.

522 Topics in Education V 1-4 May be repeated for credit; cumulative maximum 6 hours. Recent research, developments, issues, and/or applications in selected areas of education.

530 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours. Topical issues in education responding to shifting demands and skills needed by parents, teachers, school administrators and community leaders.

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536 Introduction to Qualitative Research in Education 3 Prereq EdPsy 505. Introduction to the theory and methods of qualitative research; field relations, data collections, data analysis, hypothesis development, and theory generation.

537 Advanced Qualitative Research in Education 3 Prereq EdRes 564. Advanced theory and methods of qualitative research; theoretical foundations, data collection and analysis, and reporting.

538 Special Topics in Qualitative Research in Education V 1-3 Prereq Ed Ad 536. May be repeated for credit; cumulative maximum 6 hours.

560 Student Personnel Services in Higher Education 2 or 3 Philosophy, structure, functions, and organization of student affairs administration.

561 Introduction to College Student Development 3 Student development theory, related research and the application of theory to practice in student affairs work.

562 Professional Issues in Student Affairs Administration 3 Prereq Ed Ad 560, 561. The organization, programs and professional issues related to selected student affairs programs and units.

563 Research in College Student Development 3 Prereq Ed Ad 561. Critique, understand, and apply college social identity models as they relate to teaching, advising, and working with diverse student populations.

564 Seminar in Student Affairs 3 Prereq graduate standing. Contemporary issues, analyses, and development of student affairs programs and institutions.

565 Practicum in Higher Education 3 Prereq graduate student with 15 hours of completed course work in education. Selected supervised experiences in general higher education and student affairs settings for the investigation/application of theory/methods gained through formal course work.

566 PhD Practicum in Student Affairs V 1-3 May be repeated for credit; cumulative maximum 3 hours. Prereq must have grad assistantship. Selected supervised experiences in professional affairs settings which provide for the investigation/application of theory/methods gained through formal course work.

567 Diversity in Higher Education 3 Prereq graduate standing. Reflection on experience and examination of the theory of practice or organizational leadership in the context of diversity.

568 Finance and Budgeting in Higher Education 3 Prereq undergraduate macro and microeconomics or by permission of instructor; graduate standing. Explores students to the fundamentals of higher education budgeting and finance.

570 Community and Technical Colleges 3
For teachers and administrators. Development and function of community and technical colleges.

571 College Teaching 3 Rec Ed Ad 570 or 572. Concepts, principles, issues, and procedures in college curriculum development, and college teaching.

572 History of Higher Education 3 History, philosophy, objectives, and issues of colleges and universities as social institutions.

573 Issues in Higher Education 3 Selected contemporary issues in higher education.

574 Seminar in Higher Education V 1-3 May be repeated for credit; cumulative maximum 6 hours. Contemporary issues, analyses and developments of higher education programs and institutions.

578 Higher Education Law and Ethics 3 Legal and ethical aspects of higher education with special reference to administrators, faculty, and students in higher education institutions.

579 Administration of Higher Education 3 Organization, administration and leadership of universities, colleges, and community colleges.

580 School Organization and Administration
3 Rec teaching experience. Readings and discussions on the theories and practices of school organization and administration. Cooperative course taught jointly by WSU and UI (EdAd 509).

581 Politics in Education 3 Prereq graduate standing. Examining the intrapersonal, organizational politics and political dilemma, particularly as they pertain to marginalized groups.

582 Policy Formation and Analysis in Education 3 Political and organizational policy formation processes in educational organizations; policy analysis in education.

583 Community and Communications 3 Social, political, and economic relationships between education and the community; methods of public polling and campaign strategy techniques.

584 Human Resource Management 3 Human relations in education; problems involved and practical solutions considered.

585 Financial Management in Education 3 Economics and financing of education; financial planning, budget development, investment analysis, bonding, cost effectiveness; current trends in educational finance. Cooperative course taught jointly by WSU and UI (EdAd 535).

587 Seminar in School Administration V 1-6 May be repeated for credit; cumulative maximum 6 hours. Interdisciplinary seminars; related studies; discussions in several areas by specialists.

588 The Law and Education 3 Fundamental legal principles within which public education functions; applicable school codes of Washington and other states; review important court cases.
589 Leadership Development Seminar 3
Improving knowledge and skills in strategic planning, decision making, leadership issues, conflict, motivation, staff development, productivity, and stress.

590 Internship 3 or 6 May be repeated for credit; cumulative maximum 12 hours. By interview only. Internship in professional positions. S, F grading.

596 Preparing Grant Proposals 3 Identification of funding sources; analysis, evaluation, and production of grant proposals.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

Educational Psychology Courses

EdPsy

401 Classroom Assessment, Elementary V 2
- 3 Prereq T & L 301. For candidates admitted to teacher preparation. Principles and practice of high-quality classroom assessment in the elementary schools.

468 (402) Classroom Assessment, Secondary 3 Prereq T & L 464, 465, 466; c// T & L 467, 469; admission to the teacher preparation program. Principles and practice of high-quality classroom assessment in secondary schools.

490 Instructional Practicum V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 9 hours. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Scholarly Analysis and Writing for Educators 3 Prereq graduate standing. Develop advanced information literacy to identify information resources; critically analyze education research; analyze and construct oral and written scholarly arguments.

502 Theoretical Foundations of Learning and Instruction 3 Historical and contemporary theories of learning and instruction: application of theory in counseling and teaching settings.

503 Advanced Educational Psychology 2 Theories of learning and development as applied to education.

504 Classroom-focused Research Methods 2 Methods, design, implementation, and application of results in classroom context.

505 Research Methods I 3 Research methods; literature review; design, implementation, and interpretation of results.

508 Educational Statistics 3 Prereq EdPsy 505. Introductory course for graduate students in applied statistics for the behavioral sciences. Cooperative course taught by WSU, open to UI students (Ed 572).

509 Educational Measurements: Test Development and Assessment 2 or 3 Rec EdPsy 508. Theory and use of standardized educational measurement instruments; intelligence, aptitude, and achievement tests; measurement of outcomes.

510 Assessment of Learning 3 Prereq graduate standing. Assessment of student learning, school and district evaluation; particularly appropriate for school administrators.

511 Large Scale Educational Assessment and Testing 3 Prereq EdPsy 508; 509. Large-scale educational assessment and test development and evaluation; history and policy uses of achievement tests.

519 Practicum in College Instruction 1 (0-3) May be repeated for credit; cumulative maximum 4 hours. By interview only. Supervised experience in college teaching. S, F grading.

521 Topics in Educational Psychology V 1-4 May be repeated for credit; cumulative maximum 6 hours. Recent research, developments, issues, and/or applications in selected areas of educational psychology.

531 School Psychology Professional Practice 3 Prereq admission to school psychology program. Overview of the advocacy role along with legal/ethical issues that psychologist face.

532 Interventionist Role for the School Psychologist 3 Prereq admission to school psychology program. Tools to assist school psychologists to develop and monitor academic and behavioral intervention for students.

533 Assessment of the Exceptional Child 3 Prereq admission to school psychology program. Assessment tools to assist general and special education teachers providing additional academic and cognitive data.

534 Developmental Psychopathology 3 Prereq admission to school psychology program. Impact of developmental psychopathology on a student's ability to function in the general education environment.

535 Multicultural Issues in Assessment 1 Prereq admission to school psychology program. Issues and best practices in the assessment of culturally and ethnically diverse populations.

563 Principles of Research 3 Prereq EdPsy 508 or c//; rec CoPsy 501 or EdRes 562. The centrality of literature review and the understanding of methods used in educational research; practice in designing research questions.

564 Qualitative Research 3 Prereq EdRes/EdPsy 563. Theoretical underpinnings of qualitative research; familiarity with published qualitative research in education; practical research skills.

565 Quantitative Research 3 Prereq EdPsy 508, EdRes 563. Statistical literacy in educational research; parametric and non-parametric methods.

566 Research Seminar 1 Prereq doctoral student. Presentation and analysis of research; professional development in research presentation. May be repeated for credit; cumulative maximum 4 hours. S, F grading.
Health and Fitness Courses

HF

263 Emergency Response 3 (2-3) First aid and safety procedures, including CPR for the Professional Rescuer, AED training and prevention training.

361 Health and Wellness 3 Knowledge of the multi-dimensional aspects of wellness and concepts necessary for a positive lifestyle through self-assessment.

393 Practicum in Special Populations V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. By interview only. Supervised practicum. S, F grading.

463 Methods of First Aid Instruction 2 (1-3) Prereq Red Cross first aid and CPR certificate. Red Cross Standard First Aid and CPR instructor training certification to those who qualify.

481 Health Education Methods 3 Prereq certified teacher education major; HF 361; T&L 464 or c//; T&L 465 or c//. Basic principles, theory, and practices of public school health education teaching methods for K-12 public school pre-service teachers.

483 Fitness Education Methods 3 (2-3) Prereq certified teacher education major; T&L 464 or c//; T&L 465 or c//. Basic principles, theory, and practices of public school physical education teaching methods for K-12 public school pre-service teachers.

484 Principles of Movement for Individuals with Disabilities 3 Knowledge, understanding, and skills for teaching movement activities to individuals with disabilities.

490 Instructional Practicum V 1-4 Same as MvtSt 490. S, F grading.

496 Special Topics V 1-3 May be repeated for credit; cumulative maximum 9 hours. Special topics in health.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Kinesiology Courses

Kin

563 Exercise and Immune Response 3 Rec MvtSt 463. Influence of physical exercise on immune response and consequent impact on host susceptibility to disease and infection.


Movement Studies Courses

MvtSt


262 Human Anatomy 4 (3-3) Comprehensive survey of the structure and organization of the human body; emphasis on skeletomuscular, cardiovascular, nervous, and respiratory systems. Cooperative course taught by WSU, open to UI students (PE 261).

264 Fitness 3 (2-3) Physiological, mechanical, and health-related basis of fitness practices.

313 [M] Behavioral Aspects of Human Movement 3 Prereq certified MvtSt or Ath T major; Psych 105 or Soc 101. Psychological, sociological, and anthropological concepts which relate to human movement and human performance.

314 Philosophy of Human Movement 3 Prereq certified MvtSt major. The philosophical dimensions of physical education, sport, and dance.

362 Biomechanics 3 Prereq certified MvtSt, Ath T, or HF major; junior standing; MvtSt 262 or Biol 315; math proficiency requirement. Anatomical and mechanical influences on human movement.

380 Introduction to Exercise Physiology 3 Prereq certified MvtSt, Ath T, Biol, or HF major; Biol 251; junior standing. Introduction to exercise physiology as it relates to sport, physical training, and performance.

390 Practicum in Coaching 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. By interview only. Supervised practicum. Combined maximum for MvtSt 300-level practicum courses 8 hours. S, F grading.

392 Practicum in Physical Education 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. By interview only. Supervised practicum. Combined maximum for MvtSt 300-level practicum courses 8 hours. S, F grading.

415 Assessment 3 (2-3) Prereq certified MvtSt, Ath T, or HF major; Math GER, senior standing. Measurement and evaluation for human performance.

461 [M] Motor Skill Acquisition 3 Prereq certified MvtSt, Ath T, or HF major; Biol 251; senior standing; completion of writing portfolio. Motor learning and motor control areas; neural mechanisms, practice, feedback, retention, and transfer application of theoretical concepts.

475 Marginality and Movement 3 Understanding of the current status of women’s sports participation in the U.S. and of the woman participant herself.

481 Analysis of Human Movement 3 (2-3) Prereq certified MvtSt or Ath T major; MvtSt 362; senior standing. Application of biomechanical principles for movement analysis.

490 Instructional Practicum V 1-4 May be repeated for credit; cumulative maximum 6 hours. S, F grading.

496 Special Topics 1 May be repeated for credit; cumulative maximum 4 hours. Physical education, leisure, recreation, dance, health sports.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Sport Management Courses

The general prerequisite for enrollment in 300 and 400-level sport management courses is 60 hours of coursework and certification as a sport management major or sport management minor. Students of junior or senior status in a certified major who require a 300 or 400-level sports management course for their program will be allowed to enroll in the required course. Additional prerequisites for specific courses are listed in the course descriptions. The program director must approve any exceptions to these requirements.

SpMgt

276 Introduction to Sport Management 3 Prereq C or better in Engl 101, ComSt 102, and [N] GER; 2.5 cumulative GPA. Principles and concepts in sport management; overview of sport industries and career opportunities. Not open to seniors or first semester freshmen.

290 Sport Programs 3 (2-3) Prereq C or better in Engl 101, ComSt 102, and [N] GER; 2.5 cumulative GPA. Philosophies and program content of public/private sport programs; laboratory experiences in school, college, and community sport programs.

365 Ethics and Moral Reasoning in Sport 3 Prereq certified SpMgt major or minor; SpMgt 276; junior standing. Understanding and application of ethical theory and principles of moral reasoning to the analysis of issues and dilemmas in sport.

367 [M] Sport in American Society 3 Prereq certified SpMgt major or minor; SpMgt 276; junior standing. Examination of the role of sport in contemporary American society as well as the relationship between sport and other social institutions.

374 Sport Finance 3 Prereq certified SpMgt major or minor; SpMgt 276; Acctg 230; junior standing. Introduction to financial analysis, budgeting and revenue acquisition for both “for profit” and “not for profit” sport organizations.

377 Legal Aspects of Sport 3 Prereq certified SpMgt major, or Ath T major; SpMgt 276; junior standing. Legal aspects of the supervision, management and business of sport.

394 Practicum in Sport Management V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. By interview only. Supervised practicum. S, F grading.

399 Professional Work Experience V 1 (0-3) to 6 (0-18) Prereq sophomore standing; by interview only. Paid or volunteer, off-campus work experience with a sport organization. S, F grading.

464 Sport Marketing 3 Prereq certified SpMgt major; SpMgt 365. An examination of sport as a consumer product and as a medium by which to sell consumer products.
The curriculum is designed so that the equivalent of the first three to four semesters may be transferred from community colleges with minimal difficulty. The additional basic material common to all branches of electrical engineering is concentrated in the junior year, and maximum flexibility is permitted in the senior year, allowing the student to develop a breadth of interest or to select an area of specialty. The program offers a two-semester senior design project that typically involves industry cooperation, and provides students with valuable experience in applying their skills to solve real-world problems.

The educational objectives for the BSEE program are to prepare graduates: 1) for a career in the field of electrical engineering by offering a curriculum based on the principles of mathematics, science, fundamentals of engineering design and analysis, and professional ethics (Our graduates will have professional careers related to electrical engineering); 2) to use state-of-the-art technologies and tools to solve problems relevant to societal and economic needs (Our graduates can adapt to changes in technology as well as to the needs of the society); 3) to work and live in a global, diversified society, instilling the value of life-long learning (Our graduates will continue to seek knowledge to thrive in an increasingly globalized society); 4) to meet the needs of industry for electrical engineering or to pursue graduate studies (Our graduates will have options to pursue careers in industry or in academia); and 5) to communicate clearly and work effectively in teams (Our graduates can be team members or team leaders).

Students graduating with the BSEE degree in electrical engineering have: a) an ability to apply knowledge of mathematics, science and engineering; b) an ability to design and conduct experiments as well as analyze and interpret data; c) an ability to design a system, component, or process to meet desired needs; d) an ability to function on multidisciplinary teams; e) an ability to identify, formulate, and solve engineering problems; f) an understanding of professional and ethical responsibility; g) an ability to communicate effectively in written and oral forms; h) a broad education necessary to understand the impact of engineering solutions in global, economic, and societal context; i) a recognition of the need for, and the ability to engage in, life-long learning; j) a broad education and knowledge of contemporary issues; and k) an ability to use techniques, skills and modern engineering tools necessary for engineering practices.

**Computer Engineering**

Computer engineering is a field of study that encompasses the fundamental principles, methods, and modern tools for the design and implementation of computing systems. Advances in technology are yielding smaller and higher-performance computer systems permeating into a wide range of applications, from communication systems to consumer products and common household appliances. The computer engineering program provides a balanced perspective of both hardware and software elements.
of computing systems, and of their relative design trade-offs and applications. Computer engineering builds upon fundamental courses in mathematics, science, and the engineering disciplines to achieve a sound knowledge foundation and to develop breadth. Laboratory experiences are emphasized to provide students with background on experimental design and simulation techniques. Since core course sequences are completed in the junior year, students are able to pursue their career objectives with opportunities to select from a broad spectrum of elective courses. These include a wide range of computer engineering topics such as hardware design, VLSI design, embedded systems, computer architecture, networking, and operating systems.

The program culminates with a two-semester senior design project. The project involves industry cooperation and provides students with a major design experience addressing a broad range of issues, including technical subjects as well as economics, safety, and ethical and societal considerations.

The educational objectives of the degree program in Computer Engineering are to prepare students: 1) for a career in the field of computer engineering by offering a curriculum based on the principles of mathematics, science, fundamentals of engineering design and analysis, and professional ethics (Our graduates will have professional careers related to computer engineering); 2) to use computer systems and state-of-the-art technologies and tools to solve problems relevant to societal and economic needs (Our graduates can adapt to changes in technology as well as to the needs of the society); 3) to work and live in a global, diversified society, instilling the value of life-long learning (Our graduates will continue to seek knowledge to thrive in an increasingly globalized society); 4) to meet the needs of industry for computer engineering or to pursue graduate studies (Our graduates will have options to pursue careers in industry or in academia); and 5) to communicate clearly and work effectively in teams (Our graduates can be team members or team leaders).

In order to achieve the educational objectives our students will have acquired the following skill and knowledge outcomes by the time of graduation: a) an ability to apply knowledge of mathematics, science and engineering; b) an ability to design and conduct experiments as well as analyze and interpret data; c) an ability to design a system, component, or process to meet desired needs; d) an ability to function on multidisciplinary teams; e) an ability to identify, formulate, and solve engineering problems; f) an understanding of professional and ethical responsibility; g) an ability to communicate effectively in written and oral formats; h) a broad education necessary to understand the impact of engineering solutions in global, economic, and societal context; i) a recognition of the need for, and the ability to engage in, life-long learning; j) a broad education and knowledge of contemporary issues; and k) an ability to use techniques, skills and modern engineering tools necessary for engineering practices.

Computer Science

Computer science is a discipline that provides a scientific foundation for computing expertise and skills. The curriculum is geared to provide the fundamental computing concepts derived from mathematics and sciences, and the practical application of these concepts through substantial hands-on course project experiences. The coursework in computer science prepares students for a variety of careers that involve the extensive use of computers.

There are two major degrees offered within Computer Science: the BS in Computer Science, and the BA in Computer Science. Graduates in both the degree programs will have a solid technical background in mathematics and sciences. The BS degree requires substantial basic and advanced computer science course work and is the traditional computer science degree. The BA degree is designed for multi-disciplinary students who wish to learn the basics of computer science and apply it to a different field. This degree requires a minor in another area, such as art, biochemistry, music, psychology, architecture, etc.

The program offers courses in a wide variety of topics including theory of computation, design and analysis of algorithms, software engineering, operating systems, computer networks, computer graphics, image processing, distributed systems, and database systems. The coursework is supplemented by several general purpose computing labs dedicated to computer science students, and specialized labs for courses such as operating systems, software engineering, and computer networking. Option area course sequences allow students to specialize in specific areas such as computer graphics, computer networking, computer systems software, software engineering, or computer engineering.

The educational objectives of the degree programs in Computer Science are to prepare students: 1) for computer science or software engineering careers by offering a curriculum based on the principles of mathematics, computer science, and professional ethics, in the case of the BS degree, or, for computer science or software engineering careers in interdisciplinary fields by offering a curriculum based on the principles of mathematics, computer science, and professional ethics as well as the foundations of a minor subject area, in the case of the BA degree (Our graduates will have professional careers related to computer science or software engineering); 2) to use computer systems and state-of-the-art tools and techniques to solve problems relevant to societal and economic needs (Our graduates can adapt to changes in technology as well as to the needs of the society); 3) to work and live in a global, diversified society, instilling the value of life-long learning (Our graduates will continue to seek knowledge to thrive in an increasingly globalized society); 4) to meet the needs of industry for computer scientists or to pursue graduate studies (Our graduates will have options to pursue careers in industry or academia); 5) to communicate clearly and work effectively in teams (Our graduates can be team members or team leaders).

In order to achieve the educational objectives our students will have acquired the following skill and knowledge outcomes by the time of graduation: a) an ability to apply knowledge of mathematics, science and engineering; b) an ability to design and conduct experiments as well as analyze and interpret data; c) an ability to design a system, component, or process to meet desired needs; d) an ability to function on multidisciplinary teams; e) an ability to identify, formulate, and solve engineering problems; f) an understanding of professional and ethical responsibility; g) an ability to communicate effectively in written and oral formats; h) a broad education necessary to understand the impact of engineering solutions in global, economic, and societal context; i) a recognition of the need for, and the ability to engage in, life-long learning; j) a broad education and knowledge of contemporary issues; and k) an ability to use techniques, skills and modern engineering tools necessary for engineering practices.

Computing and Information Science

Computing and Information Science is the study of the science of information and computation, including computer science, information science and systems, and information technology. The curriculum is designed to provide students with a strong foundation in the principles of computer science, as well as an understanding of the role of computing in society, and the ability to use current techniques, tools, and skills necessary for computing practice.

Certification

Students interested in majoring in any of the school’s bachelor degree programs should apply for certification as early as possible in their studies after completion of the respective courses listed under in the schedule of studies. Applications for certification are accepted prior to December 1 and May 1 for certification effective the following spring and fall, respectively. Qualification for initial certification, as well as continuation of certified status, will be evaluated based on several criteria including academic integrity, overall GPA, and GPA in mathematics, science, and electrical engineering or computer science courses. Acceptance will be made after the current semester grades are available and students will be notified of the decision as soon as possible.

Transfer Students

Students planning to transfer from other institutions should carefully note the sequence of courses. Transfers from community colleges should consult the information available on the web for transfer students at www.salc.wsu.edu/transfer or should write directly to the School of Electrical Engineering and Computer Science for specific information.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

BACHELOR OF ARTS, COMPUTER SCIENCE REQUIREMENTS

(122 HOURS)

Students may apply for certification into the Bachelor of Arts in Computer Science degree program after completion of Cpt S 121, 122, 223; Math 201, 202, 216; Phil 201. Math 171, 172 may be substituted for Math 201, 202.

No courses listed in this schedule of study may be taken on a pass/fail basis. All listed E E and Cpt S courses, required electives, and prerequisites to these courses must be completed with a grade of C or better.

First Year

First Term

<table>
<thead>
<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 121</td>
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</tbody>
</table>
Electrical Engineering and Computer Science

The Bachelor of Science in Computer Science degree program after completion of Cpt S 121, 122, EE 214; Math 171, 172, 216; Phil 201; Phys 201.

In addition, all listed E E and Cpt S courses, required electives, and prerequisites to these courses must be completed with a grade of C or better.

**BACHELOR OF SCIENCE, COMPUTER SCIENCE REQUIREMENTS (122 HOURS)**

Students may apply for certification into the Bachelor of Science in Computer Science degree program after completion of Cpt S 121, 122, 223; EE 214; Math 171, 172, 216; Phil 201; Phys 201.

No courses listed in this schedule of study may be taken on a pass/fail basis. All listed E E and Cpt S courses, required electives, and prerequisites to these courses must be completed with a grade of C or better.

**First Year**

First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 223</td>
<td>3</td>
</tr>
<tr>
<td>Cpt S 260</td>
<td>3</td>
</tr>
</tbody>
</table>
| Lab Sciences [B,P] (GER)
|                         | 4     |
| Math 212                | 4     |

Second Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 224</td>
<td>2</td>
</tr>
</tbody>
</table>
| Lab Sciences [B,P] (GER)
|                         | 4     |
| Math Elective           | 3     |
| Minor Electives         | 6     |
| Complete Writing Portfolio|     |

**Second Year**

First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 322 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Cpt S 355</td>
<td>3</td>
</tr>
</tbody>
</table>
| Engl 402 [W] or 403 [W] (GER)
|                         | 3     |
| Lab Sciences [B,P] (GER)
|                         | 4     |
| Math Elective           | 3     |
| Minor Electives         | 6     |

Second Term

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<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Advanced Cpt S Elective</td>
<td>3</td>
</tr>
<tr>
<td>Cpt S 323</td>
<td>3</td>
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</tbody>
</table>
| Intercultural Studies [J,G,K] (GER)
|                         | 3     |
| Minor Electives         | 6     |

**Third Year**

First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 322 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Cpt S 355</td>
<td>3</td>
</tr>
</tbody>
</table>
| English 402 [W] or 403 [W] (GER)
|                         | 3     |
| Lab Sciences [B,P] (GER)
|                         | 4     |
| Math Elective           | 3     |
| Minor Elective          | 6     |
| Complete Writing Portfolio|     |

**Fourth Year**

First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Cpt S 322 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Cpt S 355</td>
<td>3</td>
</tr>
</tbody>
</table>
| English 402 [W] or 403 [W] (GER)
|                         | 3     |
| Lab Sciences [B,P] (GER)
| Math 273 or 301         | 3     |
| Social Sciences [S,K] (GER)
|                         | 3     |
| Math 216                | 3     |

Second Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 317</td>
<td>3</td>
</tr>
<tr>
<td>Cpt S 323</td>
<td>3</td>
</tr>
<tr>
<td>Cpt S 360</td>
<td>4</td>
</tr>
<tr>
<td>Cpt S Option Courses</td>
<td>6</td>
</tr>
</tbody>
</table>

**Fourth Year**

First Term

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<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 421</td>
<td>3</td>
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</tbody>
</table>

**Footnotes**

1. Either math sequence below will satisfy the math requirement for this degree. Sequence B will allow a broader selection of advanced computer science electives. The course work in mathematics must total at least sixteen semester hours (including Math 216). Sequence A: Math 201,202,212, and a math elective chosen from the following list: Math 364, 416, or Stat 412. Sequence B: Math 171, 172, 220, and Math 212, or Math 360.

2. No courses listed in this schedule of study may be taken on a pass/fail basis. All listed E E and Cpt S courses, required electives, and prerequisites to these courses must be completed with a grade of C or better.

3. Fifteen credits (5 courses) of option area classes are required for completion of the degree program. The option courses are chosen from upper-level computer science related courses and must be approved by an advisor.

**COMPUTER ENGINEERING REQUIREMENTS (129 HOURS)**

Students may apply for certification into the Bachelor of Science in Computer Engineering degree program after completion of Biol 102 or Chem 105; Cpt S 121, 122; EE 214; Math 171, 172, 216; Phys 201, 202.

No courses listed in this schedule of study may be taken on a pass/fail basis. All listed E E and Cpt S courses, required electives, and prerequisites to these courses must be completed with a grade of C or better.

**First Year**

First Term

<table>
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<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 223</td>
<td>3</td>
</tr>
<tr>
<td>Cpt S 224</td>
<td>2</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 171 [N] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Phil 201 [H] (GER)</td>
<td>3</td>
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Second Term

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<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 122</td>
<td>4</td>
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</table>
| GenEd 110 [A] or 111 [A] (GER)
| Math 172                | 4     |
| Math 216                | 3     |

**Second Year**

First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 223</td>
<td>3</td>
</tr>
<tr>
<td>Cpt S 224</td>
<td>2</td>
</tr>
<tr>
<td>Cpt S 260</td>
<td>3</td>
</tr>
<tr>
<td>Phys 201 [P] (GER)</td>
<td>4</td>
</tr>
</tbody>
</table>
| Social Sciences [S,K] (GER)
|                         | 3     |

Second Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
</table>
| Biological Sciences [B] (GER)
|                         | 4     |
| GenEd 110 [A] or 111 [A] (GER)
| Math 220                | 2     |
| Phys 202 [P] (GER)      | 4     |
| Social Sciences and Diversity [S,K] [D] (GER)
|                         | 3     |
| Complete Writing Portfolio|     |

**Third Year**

First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 322 [M]</td>
<td>3</td>
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<tr>
<td>Cpt S 355</td>
<td>3</td>
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</table>
| Engl 402 [W] or 403 [W] (GER)
| Math 273 or 301         | 2 or 3|
| Stat 360                | 3     |

Second Term

<table>
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<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 317</td>
<td>3</td>
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<tr>
<td>Cpt S 323</td>
<td>3</td>
</tr>
<tr>
<td>Cpt S 360</td>
<td>4</td>
</tr>
<tr>
<td>Cpt S Option Courses</td>
<td>6</td>
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</table>

**Fourth Year**

First Term

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<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 421</td>
<td>3</td>
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</table>

**Footnotes**

1. E E 101 or E E 102 recommended.

2. No courses listed in this schedule of study may be taken on a pass/fail basis. All listed E E and Cpt S courses, required electives, and prerequisites to these courses must be completed with a grade of C or better.

3. Fifteen credits (5 courses) of option area classes are required for completion of the degree program. The option courses are chosen from computer science related courses and must be approved by an advisor.

**COMPUTER ENGINEERING REQUIREMENTS (129 HOURS)**

Students may apply for certification into the Bachelor of Science in Computer Engineering degree program after completion of Biol 102 or Chem 105; Cpt S 121, 122; EE 214; Math 171, 172, 216; Phys 201, 202.

No courses listed in this schedule of study may be taken on a pass/fail basis. All listed E E and Cpt S courses, required electives, and prerequisites to these courses must be completed with a grade of C or better.

**First Year**

First Term

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<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 223</td>
<td>3</td>
</tr>
<tr>
<td>E E 214</td>
<td>4</td>
</tr>
</tbody>
</table>
| GenEd 110 or 111 [A] (GER)
| Math 220                | 2     |
| Math 273                | 2     |
| Phys 202 [P] (GER)      | 4     |

Second Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>E E 234</td>
<td>4</td>
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<tr>
<td>E E 261</td>
<td>3</td>
</tr>
<tr>
<td>E E 262</td>
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</tbody>
</table>
| GenEd 110 or 111 [A] (GER)
| Intercultural Studies [L,G,K] (GER)
| Math 315                | 3     |
| Complete Writing Portfolio|     |

**Third Year**

First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>E E 311</td>
<td>3</td>
</tr>
<tr>
<td>E E 321</td>
<td>3</td>
</tr>
<tr>
<td>E E 324</td>
<td>4</td>
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</table>
### ELECTRICAL ENGINEERING REQUIREMENTS (128 HOURS)

Students may apply for certification into the Bachelor of Science in Electrical Engineering degree program after completion of the following courses with a grade of C or better: Chem 105; Cpt S 251; E E 221; Engl 101; Math 171, 172, 220, 273; Phys 201, 202.

No courses listed in this schedule of study may be taken on a pass/fail basis. All listed E E and Cpt S courses and prerequisites to these courses must be met. The minor program must be completed with a grade of C or better.

### First Year

<table>
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<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>First Term</td>
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<tr>
<td>Chem 105 [P] (GER)</td>
<td>4</td>
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<tr>
<td>E E 120</td>
<td>2</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 171 [N] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Second Term</td>
<td></td>
</tr>
<tr>
<td>Cpt S 251</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 172</td>
<td>4</td>
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<tr>
<td>Math 220</td>
<td>2</td>
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<tr>
<td>Phys 201 [P] (GER)</td>
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### Second Year

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<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>First Term</td>
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<tr>
<td>Biological Sciences [B] (GER)</td>
<td>3</td>
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<tr>
<td>E E 214</td>
<td>4</td>
</tr>
<tr>
<td>E E 221</td>
<td>2</td>
</tr>
<tr>
<td>Math 273</td>
<td>2</td>
</tr>
<tr>
<td>Phys 202 [P] (GER)</td>
<td>4</td>
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<tr>
<td>Second Term</td>
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<td>E E 234</td>
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<td>E E 261</td>
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<td>E E 262</td>
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### Third Year

**First Term**

<table>
<thead>
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<th>Course</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
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<tr>
<td>E E 311</td>
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</tr>
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<td>E E 321</td>
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<tr>
<td>E E 331</td>
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<td>E E 352</td>
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**Second Term**

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<th>Course</th>
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<tbody>
<tr>
<td>Stat/Math 360</td>
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### Fourth Year

**First Term**

<table>
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<tbody>
<tr>
<td>E E 415</td>
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<td>E E 489</td>
<td>3</td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
<td>3</td>
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<tr>
<td>Probability and Stat Elective</td>
<td>3</td>
</tr>
<tr>
<td>Technical Electives</td>
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**Second Term**

<table>
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<th>Course</th>
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<tbody>
<tr>
<td>E E 416 [M]</td>
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<tr>
<td>Technical Electives</td>
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<tr>
<td>Tier III Humanities or Social Sciences Course [T] (GER)</td>
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</tbody>
</table>

### Minors

**Computer Engineering**

18 semester hours of computer related courses in electrical engineering are necessary to earn a minor, 9 of which must be 300-400-level taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. E E 214, 234, and 324 are required.

**Computer Science**

The minor in computer science consists of 20 credits which must include Cpt S 121, 122, 223, and three 300-400-level Cpt S courses excluding computer skills and literacy courses. All prerequisites for minor courses must be met. The minor program must be approved by the computer science undergraduate coordinator.

### Electrical Engineering

18 semester hours of courses in electrical engineering are necessary to earn a minor, 9 of which must be 300-400-level and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Three courses (9 semester hours) in addition to E E 214, 261, and 262 are required.

### Description of Courses

#### Computer Science Courses

With the exception of the Computer Skills and Literacy courses, enrollment in 300-400-level computer science courses is restricted to certified majors or minors in computer science, computer engineering, or electrical engineering, and to juniors and seniors officially certified into other degree programs requiring these computer science courses.

**Cpt S**

110 Introductory Seminar in Computer Science 1 (0-2) Prereq freshmen only. Introduction to the breadth of computer science providing exposure to its sub-disciplines and their interactions with society, economics, and engineering. S, F grading.

111 Introduction to Algorithmic Problem Solving 3 (2-3) Elementary algorithmic problem solving, computational models, sequential, iterative and conditional operations, parameterized procedures, array and list structures and basic efficiency analysis.

121 Program Design and Development 4 (3-3) Prereq Math 107, 201 or satisfactory math placement score. Formulation of problems and top-down design of programs in a modern structured language for their solution on a digital computer.

122 Data Structures 4 (3-3) Prereq Cpt S 121 or equivalent. Advanced programming techniques: data structures, recursion, sorting and searching, and basics of algorithm analysis.

223 Advanced Data Structures 3 Prereq Cpt S 122; Math 216 or equivalent. Advanced data structures, object oriented programming concepts, concurrency, and program design principles.

224 Programming Tools 2 Prereq Cpt S 122; rec 223 or equivalent. Debugging tools, scripting languages, UNIX programming tools, introduction to graphical user interface programming.

251 C Programming Language 3 Prereq Math 171 or c/. Skills and literacy course. Comprehensive programming practice using C.

253 Java Programming Language 3 Prereq Cpt S 121, 153, 203, or 251. Skills and literacy course. Comprehensive programming practice using Java.
260 Introduction to Computer Architecture
3 Prereq Cpt S 223 or c/. Computer systems architecture; logic, data representation, assembly language, memory organization and trends.

283 Topics in Computer Skills and Literacy
V 1-3 May be repeated for credit; cumulative maximum 9 hours. Skills and literacy course. Current topics in computer skill development and computer literacy.

302 Unix System Administration
3 (2-3) Prereq Cpt S 121. Skills and literacy course. Functions and responsibilities of Unix system administrators; disks, networking, accounting and policy.

306 Programming for Engineers I
3 Prereq Math 220, 273, 315. Problem-solving methods, software development principles structured programming with engineering applications.

307 Programming for Engineers II
3 Prereq Cpt S 306. Continuation of Cpt S 306; advanced programming topics and data structures with engineering applications.

317 Automata and Formal Languages
3 Prereq Cpt S 122, Math 216. Finite automata, regular sets, pushdown automata, context-free language, Turing machines and the halting problem.

322 Software Engineering Principles I
3 Prereq Cpt S 224, Math 216, c/ in Engl 402. Introduction to software engineering: requirements analysis, definition, specification including formal methods; prototyping; design including object and function oriented design.

325 Software Design
3 Prereq Cpt S 223; Cpt S 322 or c/. Practical aspects of software design and implementation using object-oriented, aspect-oriented and procedural programming.

355 Programming Language Design
3 Prereq Cpt S 223, 224. Design concepts of high-level programming languages; survey of existing languages, experience using some languages.

360 Systems Programming
4 (3-3) Prereq Cpt S 223; Cpt S 260 or E E 234. Implementation of systems programs, concepts of computer operating systems; laboratory experience in using operating system facilities.

401 Computers and Society
3 Prereq Phil 260 or Soc 101; completion of one Tier I and three Tier II courses; completion of University Writing Portfolio. Skills and literacy course. Ethical and societal issues related to computers and computer networks; computers as enabling technology; computer crime, software theft, privacy, viruses, worms. Credit not granted for both Cpt S 401 and 402.

402 Social and Professional Issues in Computer Science
3 Prereq Cpt S 121; certified in computer science; completion of University Writing Portfolio. Social, legal, ethical and professional issues that arise in the context of computing. Credit not granted for both Cpt S 401 and 402.

421 Software Design Project I
3 (0-9) Prereq Cpt S 322; Cpt S 323. Large-scale software development including requirements analysis, estimation, design, verification and project management.

422 Software Engineering Principles II
3 Prereq Cpt S 322; Cpt S 323. Dependable software systems; software verification and validation, testing; CASE environments; software management and evolution.

423 Software Design Project II
3 (1-6) Prereq Cpt S 421; Cpt S 422. Laboratory/group design project for large-scale software development, requirements analysis, estimation, design, verification techniques.

425 Network Security
3 Prereq Cpt S 360. Practical topics in network security; policy and mechanism; intrusion, detection, prevention, response, cryptography. Cooperative course taught by UI (CS 423), open to WSU students.

427 Computer Security
3 Prereq Cpt S 360, Math 216. Computer security concepts, models and mechanism; encryption technology, formal models, policy and ethical implications. Credit not granted for both Cpt S 427 and 527.

430 Numerical Analysis
3 Prereq FORTRAN, C, or other programming language; Math 215. Same as Math 448. Credit not granted for both Cpt S 430 and 530.

434 Neural Network Design and Application
3 Prereq Cpt S 122, Stat 360. Hands-on experience with neural network modeling of nonlinear phenomena; application to classification, forecasting, identification and control. Credit not granted for both Cpt S 434 and 534.

435 Concurrent and Real-Time Systems
3 Prereq Cpt S 322, 467; engineering consortium students only. Analysis, design, and programming of concurrent and real-time systems.

438 Scientific Visualization
3 Prereq Math 172; Cpt S 223; Cpt S 224. Data taxonomy, sampling, plotting, using and extending a visualization package, designing visualization and domain-specific techniques. Credit not granted for both Cpt S 438 and 538.

440 Artificial Intelligence
3 Prereq Cpt S 122; Math 212 or 360. An introduction to the field of artificial intelligence including heuristic search, knowledge representation, deduction, uncertainty reasoning, learning, and symbolic programming languages.

442 Computer Graphics
3 Prereq Cpt S 223, 224; Math 220. Raster operations; transformations and viewing; geometric modeling; visibility and shading; color. Credit not granted for both Cpt S 442 and 542. Cooperative course taught by WSU, open to UI students (CS 324).

443 Human-Computer Interaction
3 Prereq junior standing. Concepts and methodologies of engineering, social and behavioral sciences to address ergonomic, cognitive, social and cultural factors in the design and evaluation of human-computer systems.

445 Digital Image Processing
3 Prereq Cpt S 330 or E E 341; Math 315; c/ in Stat 360 or 443. Digitization, coding enhancement, restoration, reconstruction, segmentation, and description of digital images. Cooperative course taught by WSU, open to UI students (CS 404).

446 Animation Programming
3 (1-4) Prereq Cpt S 512. Introduction to computer animation production, animation programming techniques, simulation, and dynamic visualization.

450 Design and Analysis of Algorithms
3 Prereq Cpt S 223, 317, Stat 360. Analysis of data structures and algorithms; computational complexity and design of efficient data-handling procedures.

451 Introduction to Database Systems
3 Prereq Cpt S 223, 224. Introduction to database concepts, data models, database languages, database design, implementation issues.

452 Compiler Design

453 Graph Theory
3 Prereq Math 220. Same as Math 453. Credit not granted for both Cpt S 453 and 553.

455 Introduction to Computer Networks
3 Prereq Cpt S 360. Concepts and implementation of computer networks; architectures, protocol layers, internetworking and addressing case studies.

456 Secure Wireless Networks
3 Prereq Cpt S/EE 455 or permission. Mobile wireless networks; wireless ATM, threat models, authentication, detection mechanisms for security attacks. Credit not granted for both Cpt S 456 and 556.

460 Operating Systems and Computer Architecture
3 Prereq Cpt S 360. Operating systems, computer architectures, and their interrelationships in micro, mini, and large computer systems.

461 Digital Sound Synthesis and Processing
3 Prereq EE 321 or Cpt S 317; B- or better in Cpt S 122 and Math 273. Same as E E 461.

464 Distributed Systems Concepts and Programming
3 Prereq Cpt S 360. Concepts of distributed systems; naming, security, networking, replication, synchronization, quality of service; programming middleware. Credit not granted for both Cpt S 464 and 564. Cooperative course taught by WSU, open to UI students (CS 404/504).

466 Embedded Systems
3 (2-3) Prereq Cpt S 360. The design and development of real-time and dedicated software systems with an introduction to sensors and actuators. Cooperative course taught by WSU, open to UI students (CS 404).

470 Concepts in Biotechnology
3 Prereq [B] GER; senior standing; certified major in engineering or computer science. Same as E E 470.
481 Python Software Construction 3 Prereq CptS 223, 224. Intensive introduction to the python language; user interface, building and using extension modules; C interfacing; construction of a major project.

483 Topics in Computer Science V 1-4 May be repeated for credit. Prereq Cpt S 322. Current topics in computer science or software engineering.

490 Work Study Internship V 1-9 May be repeated for credit; cumulative maximum 9 hours. Prereq Cpt S 224; E E 234; computer science major; by interview only. Experience in programming and systems analysis in a working environment under supervision of industrial or governmental professionals and faculty. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

500 Proseminar 1 Faculty research interests, departmental computer systems, computer science research, report preparation. S, F grading.

511 Computational Structures 3 Prereq Cpt S 317 or Math 421; graduate standing. Categories as theories; formal approaches to specifications and homomorphisms of computational structures.

516 Algorithmics 3 Prereq Cpt S 450. Discrete structures, automata, formal languages, recursive functions, algorithms, and computability.

518 Programming Language Theory 3 Prereq Cpt S 516 or Math 421. Syntax; operational and denotational semantics. Cooperative course taught by WSU, open to UI students (CS 510).

522 Software Reuse 3 Prereq Cpt S 422. Basic principles of software reuse, compositional and generative reuse, with specific topics selected from current literature, reverse engineering.

524 Software Specification and Analysis 3 Prereq Cpt S 422 or instructor's permission; Math 216. Math 216. Formal specification, abstraction, and analysis of software using a formal specification language; case studies of design.

526 Experimental Software Engineering 3 Prereq CptS 322, CptS 422, graduate standing. Experimental strategies to assess and understand software processes and artifacts (experiments, case studies, field observations, surveys).

527 Computer Security 3 Prereq Cpt S 360; Math 216. Graduate-level counterpart of Cpt S 427; additional requirements. Credit not granted for both Cpt S 427 and 527.

530 Numerical Analysis 3 Prereq FORTRAN, C, or other programming language; Math 315; graduate standing. Graduate-level counterpart of Cpt S 430; additional requirements. Credit not granted for both Cpt S 430 and 530.

531 Computational Linear Algebra 3 Prereq Math 448. Same as Math 544.

532 Advanced Numerical Analysis 3 Prereq Math 448. Same as Math 545.

533 Numerical Analysis of Elliptic PDEs 3 Prereq Math 448. Same as Math 546.

534 Neural Network Design and Application 3 Graduate-level counterpart of Cpt S 434; additional requirements. Credit not granted for both Cpt S 434 and 534.

538 Scientific Visualization 3 Prereq Cpt S 443. Data taxonomy; sampling; plotting; using and extending a visualization package; designing visualizations; domain-specific techniques.

541 Advanced Artificial Intelligence 3 Prereq Cpt S 440. Intelligent computer programs; simulation of cognitive processes.

542 Computer Graphics 3 Prereq Cpt S 223, 224; Math 220; graduate standing. Graduate-level counterpart of Cpt S 442; additional requirements. Credit not granted for both Cpt S 442 and 542.

544 Neural Computation 3 Prereq Math 315, Stat 443. Parallel processing inspired by natural neural systems; neural computer architecture, supervised and unsupervised learning, generalization, implementation, and application; neurophysiology basis.

545 Advanced Computer Graphics 3 Prereq Cpt S 442. Solid modeling, visual realism, light and color models, advanced surface generation techniques.

549 Genetic Algorithms 3 Prereq Cpt S 223, Math 360. Basic concepts, fundamental theories, and techniques of genetic algorithms; applications.

550 Parallel Computation 3 Prereq Cpt S 450. Parallel machine models, principles for the design of parallel algorithms, interconnection networks, systolic arrays, computational aspects to VLSI.


553 Graph Theory 3 Prereq Math 220; graduate standing. Graduate-level counterpart of Cpt S 453; additional requirements. Credit not granted for both Cpt S 453 and 553.

555 Computer Communication Networks 3 Prereq Stat 443. Same as E E 555.

556 Secure Wireless Networks 3 Prereq Cpt S/EE 455 or permission. Graduate-level counterpart of Cpt S 456; additional requirements. Credit not granted for both Cpt S 456 and 556.

557 Advanced Computer Networks 3 Prereq Cpt S 455 or 555. ATM networks, optical WDM networks, and wireless/mobile networks; access, transport, and routing protocols.

559 Mobile Computing in Wireless Networks 3 Prereq graduate standing. GSM, CDMA, Mobile-IP, MANET, WATM; routing, mobility management, authentication, naming, address resolution; transport layer and security issues due to mobility.

560 Operating Systems 3 Prereq Cpt S 460. Structure of multiprogramming and multiprocessoring; efficient allocation of systems resources; design implementation and performance measurement.

561 Computer Architecture 3 Prereq E E 424. Parallel and distributed processors; multiprocessors; interconnection topologies; language-directed architecture; special-purpose architecture.

562 Fault Tolerant Computer Systems 3 Prereq Cpt S 460; Cpt S 464 or 564. Fault tolerance aspects involved in design and evaluation of systems; methods of detection and recovery; multicast, middleware, and reconfiguration.

564 Distributed Systems Concepts and Programming 3 Prereq Cpt S 360. Graduate-level counterpart of Cpt S 464; additional requirements. Credit not granted for both Cpt S 464 and 564. Cooperative course taught by WSU, open to UI students (CS 504).

566 Embedded Systems 3 (2-3) Prereq Cpt S 560; graduate standing. Graduate-level counterpart of Cpt S 466; additional requirements. Credit not granted for both Cpt S 466 and 566.

570 Machine Learning 3 Prereq Cpt S 122; graduate standing. Introduction to building computer systems that learn from their experience; classification and regression problems; unsupervised and reinforcement learning.

572 Numerical Methods in Computational Biology 3 Prereq cell biology, probability and statistics, graduate standing in computer science, or permission of the instructor. Computational methods for solving scientific problems related to information processing in biological systems at the molecular and cellular levels.

573 Bioinformatics Software Development 3 Prereq cell biology, probability and statistics, and graduate standing in computer science or permission of the instructor. Provides programming skills needed to address current computational problems in bioinformatics; emphasis on mathematical development and software design.

580 Advanced Topics in Computer Science 3 May be repeated for credit.

595 Directed Study in Computer Science V 1-3 May be repeated for credit; cumulative maximum 6 hours. Current topics in computer science.

596 Computer Science Seminar 1 May be repeated for credit; cumulative maximum 3 hours.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.
Electrical Engineering Courses
Enrollment in 300 and 400-level electrical engineering courses is restricted to certified majors or minors in electrical engineering, computer engineering, or computer science, and to juniors and seniors officially certified into other degree programs requiring 400-level engineering courses.

E E
214 Design of Logic Circuits 4 (3-3) Prereq Cpt S 121 or 251. Design and application of combinational logic circuits with exposure to modern methods and design tools; introduction to sequential logic circuits.

221 Numerical Computing for Engineers 2 Prereq Math 172; Math 220. Solutions to engineering problems using modern software tools such as Matlab.

234 Microprocessor Systems 4 (3-3) Prereq Cpt S 122 or E E 221; E E 214. Microprocessor system architecture, instruction sets, and interfacing; assembly language programming.

261 Electrical Circuits I 3 Prereq Math 315 or c//; Phys 202; c// in E E 262. Application of fundamental concepts of electrical science in linear circuit analysis; mathematical models of electric components and circuits.

262 Electrical Circuits Laboratory I 1 (0-3) Prereq E E 221; E E 261 or c//. Laboratory exercises in electrical laws; transient and steady-state responses of electrical circuits.

304 Introduction to Electrical Circuits 2 Prereq Math 315 or c//. Basic DC and AC circuits.

311 Electronics 3 Prereq E E 214, 261. Fundamental device characteristics including diodes, MOSFETs and bipolar transistors; small- and large-signal characteristics and design of linear circuits.

312 Electronics Laboratory I 1 (0-3) Prereq admission to engineering consortium program, E E 321 or c//. Lab exercises in the implementation and analysis of electronic circuits.

315 Microcomputers and Assembly Language 3 Prereq admission to engineering consortium program, 6 semester hours of programming. Study of microprocessor systems, including CPUs, memory, registers, bus structures, computer control, and assembly language programming.

316 Microprocessor Laboratory I 1 (0-3) Prereq admission to engineering consortium program, E E 315 or c//. Lab exercises in microprocessor systems.

321 Electrical Circuits II 3 Prereq E E 261. State space analysis, Laplace transforms, network functions, frequency response, Fourier series, two-ports, energy and passivity.

322 Electrical Circuits Laboratory II 1 (0-3) Prereq admission to engineering consortium program; E E 321 or c//. Lab exercises in the time and frequency-domain analysis of electrical circuits.


327 Electronics II 3 Prereq admission to engineering consortium program, E E 311. Analysis and design of electronic circuits, both analog and digital, discrete and integrated.

328 Electronics Laboratory II 1 (0-3) Prereq admission to engineering consortium program, E E 327 or c//. Lab exercises in the implementation and analysis of electronic circuits.

331 Electromagnetic Fields and Waves 3 Prereq E E 261, 262; Math 315; Phys 202; certification not required. Fundamentals of transmission lines, electrostatics, magnetostatics, and Maxwell’s Equations.

334 Computer Architecture 3 Prereq E E 234. Modern developments in digital system design; parallel structures, pipelining, input/output, high speed circuits, laboratory experience in digital system design; emphasis on CPU architecture.

341 Signals and Systems 3 Prereq E E 321; Stat 360 or 443 or c//. Discrete and continuous-time signals, LTI systems, convolution, sampling, Fourier transform, Z-transform, filtering, DFT, amplitude and frequency modulation.

351 Distributed Parameter Systems 3 Prereq E E 331. Plane waves, waveguides, resonators, antennas, numerical methods.

352 [M] Electrical Engineering Laboratory I 3 (1-6) Prereq E E 311, 321, or c//. Experiments in electrical circuits, measurements and electronics; principles of measurements and measuring instruments.

361 Electrical Power Systems 3 Prereq E E 321, 331. Power system hardware; transformers, and electromechanical machinery; introduction to power system operation.

362 [M] Power System Laboratory I 2 (1-3) Prereq E E 262; E E 352; c// in E E 361, E E 341. Experiments in simulation, modeling, transformers, rotating machines, and transmission lines.

414 [M] Senior Design Prep 3 Prereq senior standing in engineering consortium program. Engineering project management and design; teamwork, client interaction, specifications, planning, ethics, costing, oral and written technical presentations.

415 Design Project Management 2 Prereq senior standing; EconS 101 or 102; completion of all required 300-level E E and Cpt S courses. Project scheduling/planning, technical writing, oral presentation skills, working in teams, TQC, TQM, market-driven organizations.

416 [M] Electrical Engineering Design 3 (1-6) Prereq E E 415; Engl 402 or 403. Electrical engineering design of specific projects including design specification; written and oral presentations and reports.

425 Computer Architecture and Design 3 Prereq E E 315; engineering consortium students only. Study of computer design at the architectural and gate levels, pipelining, RISC vs. CISC, cache systems, register-transfer level simulation.

431 RF and Microwave Circuits and Systems 4 (3-3) Prereq E E 341, 351. Design and implementation of RF/microwave modules and systems for telecommunications; microstrip, filters, mixers, amplifiers, frequency synthesizers and transceivers.

432 RF Engineering for Telecommunications 4 (3-3) Prereq E E 341; E E 351; Stat 360 or 443. System and propagation issues for wireless telecommunications; cellular, PCS, microwave, and satellite system analysis, design, measurement, and testing.

434 ASIC and Digital Systems Design 3 Prereq E E 234, 321, 324. Application Specific Integrated Circuit and Digital System Design methods, semi-custom, full-custom, and field-programmable devices; digital system architectures, electronics, and tests.

451 Digital Communication Systems 3 Prereq E E 341, Stat 360 or 443. Digital communication techniques; performance of digital communication systems in noise; matched filter detection; quantization. Cooperative course taught jointly by WSU and UI (E E 455).

455 Introduction to Computer Networks 3 Prereq Cpt S 360. Same as Cpt S 455.

461 Digital Sound Synthesis and Processing 3 Prereq EE 321 or Cpt S 317; B- or better in Cpt S 122 and Math 273. Digital sound synthesis, discrete Fourier transforms and frequency domain analysis, digital processing and manipulation of audio signals.

464 Digital Signal Processing 1 3 Prereq E E 341. Discrete and fast Fourier transforms; Z-transform; sampling; discrete convolution; digital filter design; effects of quantization.

476 VLSI Design 3 (2-3) Prereq E E 234, 311, 324. Very Large Scale Integrated circuit, system and physical design using CAD software; project specification, modeling, implementation, documentation and reporting.

470 Concepts in Biotechnology 3 Prereq [B] GER; senior standing; certified major in engineering or computer science. Fundamentals of biological sciences and biotechnology for engineers and computer scientists.

476 Analog Integrated Circuits 3 Prereq E E 311; 351 or c//; 489 or c//. Analysis and design of analog integrated circuits in CMOS and BiCMOS technologies; current mirrors, gain stages, operational amplifiers, frequency response, and compensation. Credit not granted for both E E 476 and 576.

477 [M] Analog Integrated Circuits Laboratory 2 (1-3) Prereq c// in E E 476. Laboratory applications of E E 476 including the computer-aided design of analog integrated circuits; emphasis on design documentation and reporting.
478 Microelectronic Fabrication 3 Prereq MSE 302 or by permission. Semiconductors, photolithography, diffusion, oxidation, thin film deposition, plasma and chemical etching, process integration, fabrication and testing of diodes and MOS capacitors. Credit not granted for both E E 478 and 578.

483 Topics in Electrical and Computer Engineering V 1-3 May be repeated for credit; cumulative maximum 3 hours. Current topics in electrical engineering and computer engineering.

486 Power Electronics 3 Prereq E E 311, 321. High power semiconductor devices; analysis and design of linear and switching power supplies, high frequency magnetics, controller design. Cooperative course taught jointly by WSU and UI (EE 427).

489 Introduction to Control Systems 3 Prereq E E 341. State variable models, system response, stability analysis, root locus analysis and design; frequency-response and state-space analysis and design.

491 Performance of Power Systems 3 Prereq E E 361, 362; Stat 360 or 443. Static and dynamic behavior of power systems, powerflow, and economic considerations.

493 Protection of Power Systems I 3 Prereq E E 361. Analysis and equipment fundamentals of power system protection; symmetrical components, fault calculations; fuses; and relays including burden calculations.

494 Protective Relay Labs 2 (0-6) Prereq E E 493 or c//. Experiments and measurements of protective relay equipment under test, simulated fault and fault conditions.

495 Internship in Electrical Industry V 2-4 May be repeated for credit; cumulative maximum 8 hours. Prereq E E 341 or 361; for juniors and seniors in electrical engineering. Students work full time on engineering assignments in approved industries. S, F grading.

496 Introduction to Semiconductor Device Theory 3 Prereq E E 311 or MSE 302; Stat 360 or 443. Equilibrium statistics of electrons and holes; carrier dynamics; p-n junctions, metal-semiconductor junctions, BJTs, Mosfets, LEDs.

497 RF Mosfet Modeling 3 Prereq E E 496. Mosfet device operation, SPICE BSM, low end frequency small signal models, noise, parameter extraction, device simulation, DC and RF measurements.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Linear System Theory 3 Prereq E E 489. Dynamic systems from the state variable approach; observability, controllability, stability, and sensitivity of differential and nondifferential systems. Cooperative course taught jointly by WSU and UI (EE 572).

502 Linear Multivariable Control 3 Prereq E E 501. Optimal linear feedback control, optimal stochastic observers, LQG/LTR design methodology, modern Wiener-Hopf design, robust controllers. Cooperative course taught jointly by WSU and UI (EE 574).

503 Structure, Dynamics and Control of Large-scale Networks 3 Prereq E E 501, 507. Introduction and development of computational and analytical methods required to characterize large-scale networks.


507 Random Processes in Engineering 3 Prereq Stat 443. Functions of random variables; random sequences; stochastic processes; mean-square stochastic calculus; ergodicity; spectral density; linear transformations, filtering, dynamic systems. Cooperative course taught jointly by WSU and UI (EE 570).

508 Estimation Theory for Signal Processing, Communications, and Control 3 Prereq E E 501, 507, or equivalent. Principles of statistical estimation; LSE; Kalman filtering; smoothing; prediction; maximum-likelihood and Bayesian estimation.


511 Protection of Power Systems II 3 Prereq E E 491 or c//. Protection of electrical equipment as related to electric power systems with emphasis on digital algorithms. Cooperative course taught jointly by WSU and UI (EE 526).

512 Active Network Synthesis 3 Prereq E E 341. Devices and classical network synthesis, two-port network theory, filters, active filters.

518 Advanced Electromagnetic Theory I 3 Prereq E E 351. Electromagnetic waves, electromagnetic theorems and concepts, solutions to the wave equation in rectangular, cylindrical and spherical coordinates. Cooperative course taught by WSU, open to UI students (EE 530).

519 Advanced Electromagnetic Theory II 3 Prereq E E 518. Exact solutions to canonical electromagnetic diffraction problems, high and low frequency limits, foundations of numerical solutions to electromagnetic scattering problems.

520 Plasma Engineering 3 Prereq E E 351 or Phys 342. Electromagnetics, kinetic theory, and fluid mechanics of plasmas in space, arcs, plasma processing, coronas, and fusion reactors.

521 Analysis of Power Systems 3 Prereq E E 491. Concepts and practices of modern power engineering, including steady-state and dynamic analysis, economics and control design.

524 Advanced Computer Architecture 3 Prereq E E 424. Instruction set architectures, pipelining and super pipelining, instruction level parallelism, superscalar and VLIW processors, cache memory, thread-level parallelism and VLSI.

527 Antenna Theory and Design 3 Prereq E E 451. Antenna fundamentals, analytical techniques, characteristics and design procedures for selected types of wire, broadband, and aperture antennas. Cooperative course taught jointly by WSU and UI (E E 533).

528 Advanced Topics in Electromagnetics 3 May be repeated for credit; cumulative maximum 6 hours. Prereq E E 531. Advanced topics of current interest in wave propagation (electromagnetics, acoustics, or optics).


531 Energy Management and Planning 3 Available energy resources; energy issues, economic analysis of energy alternatives; energy future.

535 Numerical Solutions to EM Problems I 3 Prereq E E 531. Theory and use of finite-difference time-domain; numeric dispersion; absorbing boundary conditions; scattering; radiation; time-domain vs. frequency-domain.


541 Digital Control Systems II 3 Prereq E E 441. State space approach, SISO, optimal control, state estimators, stochastic systems, state estimation in the presence of noise.

544 Neural Computation 3 Prereq Math 315, Stat 443. Same as Cpt S 544.

545 Data Compression 3 Prereq E E 507, 543. Source coding with a fidelity criterion; quantization theory; predictive, transform and subband coding; noiseless source codes.

548 Information Theory and Channel Coding 3 Prereq E E 451, 507. Information theory; entropy, mutual information, source and channel coding theorems, channel capacity, Gaussian channels; channel coding; block and convolutional codes.

551 Data Communication Systems 3 Prereq E E 341, 507. Digital communications; multi-amplitude/phase signal constellations; probability of error performance; cutoff rate; Viterbi algorithm; trellis coded modulation.
554 Asynchronous Digital Systems 3 Prereq E E 324. Analysis and design of high speed asynchronous state machines, timing defect analysis, modular elements, arbiters, programmable sequencers, system level design. Cooperative course taught jointly by WSU and UI (EE 540).

555 Computer Communication Networks 3 Prereq Stat 443. Packet switching networks; multi-access and local-area networks; delay models in data networks; routing and flow control.

562 Fault Tolerant Computer Systems 3 Prereq Cpt S 460; Cpt S 464 or 564. Same as Cpt S 562.

571 Advanced Wireless Integrated Circuits and Systems 3 Prereq E E 341 and 351 or 431. Analysis and design methodologies of state-of-the-art wireless integrated circuits and systems.

574 Optoelectronics 3 Prereq E E 496 or Phys 463. Methods of modulating, generating, and detecting light; display techniques; display devices; fiber optics.

576 Analog Integrated Circuits 3 Prereq graduate standing; E E 311; 351 or c//; 489 or c//; c// in 477 for capstone design credit. Graduate-level counterpart of E E 476; additional requirements. Credit not granted for both E E 476 and 576.

581 Advanced Topics in Power Systems 2 or 3 May be repeated for credit; cumulative maximum 6 hours. Prereq E E 521. Power system operations including AGC, economic dispatch and security; power system dynamics; intelligent systems applications. Cooperative course taught jointly by WSU and UI (EE504).

582 Advanced Topics V 1-3 May be repeated for credit.

586 VLSI Systems Design 3 Prereq E E 444. VLSI models, layout algorithms, design methodologies, simulation and layout tools, algorithm design for VLSI implementation.

587 System on Chip (SoC) Design and Test 3 Prereq E E 434, 466. System on Chip (SoC) and sub-micron integrated circuit design and testing.

595 Directed Study in Electrical Engineering V 1-3 May be repeated for credit. Current topics in electrical engineering.

596 Advanced Analog Integrated Circuits 3 Prereq E E 476, 477. MOS and BiCMOS technologies; MOS and BiCMOS operational amplifiers; A/D, D/A converters; switched-capacitor filters; continuous-time filters. Cooperative course taught by WSU, open to UI students (EE S15).

597 RF Mosfet Modeling 3 Prereq E E 496. Graduate-level counterpart of E E 497; additional requirements. Credit not granted for both E E 497 and 597.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

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Engineering

www.cea.wsu.edu
Dana Hall 146
509-335-5593

Dean, C. S. Claiborn.

The College of Engineering and Architecture offers degree programs through its School of Architecture and Construction Management, School of Chemical Engineering and Bioengineering, Department of Civil and Environmental Engineering, School of Electrical Engineering and Computer Science and School of Mechanical and Materials Engineering. These degree programs are described under each unit’s separate description in the catalog. In addition, the college offers one course that is common to several degree program curricula and a minor that is available to all non-engineering majors at the university. The minor provides students with a background about how engineering can be applied to real-world problems.

Minors

Engineering

The College of Engineering and Architecture offers a minor in engineering. The minor in engineering requires 17 hours, 9 of which must be upper-division taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. The requirements are: 8 hours from Engr 120 or M E 103 or M S E 110; C E 211, Ch E 201, M E 212, E E 214, 361, 262; and 9 hours from C E 315, 351, 463, E E 304, 311, M E 301, 313. The engineering minor is not open to engineering majors. Please contact the College of Engineering and Architecture Undergraduate Programs and Students Services office at 509-335-0348 or ceainfo@wsu.edu for more information.

Description of Courses

Engineering Courses

Engr

120 Innovation in Design 2 Introduction to engineering disciplines, problem solving, design teamwork and ethics.

420 Multidisciplinary Engineering Design I 3 (1-4) Prereq senior standing; certified engineering major. Needs analysis and conceptualization of technological products and business plan for target market; multidisciplinary team development.

School of Engineering and Computer Science, WSU Vancouver

www.vancouver.wsu.edu/encs
VELS 130, Vancouver Campus
360-546-9639

The School of Engineering and Computer Science (ENCS) is an academic unit of the WSU College of Engineering and Architecture that houses the engineering and computer science programs located at WSU Vancouver.

The undergraduate curricula provide students with a solid foundation upon which they can build to meet the challenges associated with their individual career paths and to adapt to the rapidly changing technologies. We emphasize the fundamentals and give students significant choice in designing their academic agenda to meet their career goals. In Computer Science, students can choose from a variety of courses in areas such as intelligent systems, software and hardware systems, graphics and multimedia. In Mechanical Engineering, students can customize their study through three option areas: (1) Micro/nanotechnology; (2) Design and Manufacturing; and (3) Mechatronics (robotics and automation). Effective writing, speaking and presentation skills, and ethics are also emphasized as important attributes of our graduates.

The School of ENCS is located at Washington State University’s campus in Vancouver Washington and is intended to directly serve students in the southwest Washington region. The programs were established and designed to prepare students to satisfy the needs of regional companies and organizations for engineering and computing professionals. The curricula also prepare students for continued education at the graduate level in computer science and mechanical engineering.

The School offers courses of study leading to the degrees of Bachelor of Science in Mechanical Engineering (BSME), Bachelor of Science in Computer Science (BSCS), Master of Science in Mechanical Engineering (MSME), and Master of Science in Computer Science (MSCS).

Computer Science

It is the objective of the computer science program to provide a broad education in the science and application of computing. Students are expected to gain proficiency in the design and implementation of software systems, as well as the application of the theory of computing to that process. In addition, all
students will develop a background in the hardware architectures that underlie software systems and the mathematics that provide the basis for science and computing. The degree program also requires students to obtain a background in other scientific disciplines and to develop effective communication skills.

**Educational Objectives**

As a graduate of the WSU Vancouver Computer Science program:

1. You will be a knowledgeable and skilled computer scientist. Each graduate’s knowledge will span the fundamental principles of computer science and include an understanding of several advanced specialty areas. Graduates will have practical experience with tools, languages and systems which are representative of those used by regional industries. Analytical problem solving and well-crafted software solutions will be hallmarks of our graduates.

2. You will exhibit the workplace behaviors expected by employers. Employers can expect our graduates to communicate clearly, to maintain task commitment, to stay organized, and to overcome obstacles, while working individually or in a team. Graduates will demonstrate these behaviors in their jobs and careers.

3. You will be committed to high standards of professionalism. Graduates will embrace a professional code of ethics in their practice of computer science. They will recognize the social impact of their work and respect the intellectual property of others.

4. You will adapt to the changing landscape of computer science. Effective computer scientists must regularly update their knowledge and skills. WSU Vancouver graduates augment their knowledge and develop new skills with individual study, classes and other techniques. Some graduates will pursue advanced degrees; others will take advantage of professional development opportunities.

**Program Outcomes**

Graduates of WSU Vancouver Computer Science program will possess: (1) a firm foundation and knowledge of mathematics, statistics, science, and computing principles, and the ability to apply this knowledge to solving problems; (2) a foundational knowledge of computer engineering and the methods by which computers are constructed and organized; (3) the ability to design, implement, test and evaluate a computing system, software component, or algorithm to meet required needs and imposed constraints; (4) the ability to function on multi-disciplinary teams; (5) the ability to identify and analyze problems, and synthesize computational solutions; (6) an understanding of professional and ethical responsibility; (7) the ability to communicate effectively in writing, orally, and visually; (8) the ability to understand the global and societal impacts of computing technology; (9) a recognition of the need for, and an ability to engage in, life-long learning and an ability to adapt to changes and advancements in the field of computer science; (10) knowledge of contemporary problems and technologies related to computer science; and (11) the ability to use modern software development tools and languages necessary for professional practice.

**Mechanical Engineering**

Mechanical Engineering provides an excellent education for today’s technological world. Mechanical engineers are the backbone of the engineering profession and work in every industry—from transportation, communications, and electronics to bioengineering, commerce, and manufacturing—in business, government, and universities. Mechanical engineers work with motion, energy, force and are involved with manufacturing the products they design. They develop robotic systems, design products, computer control systems for machinery, commercial jets, instruments for medicine, high-performance sporting equipment, and supervise manufacturing operations.

Our undergraduate curriculum covers the fundamental aspects of the field, emphasizes basic principles and their use in solving engineering problems. The upper-division course of study focuses on design, manufacturing process, robotics, computer-aided-engineering, thermal and fluid systems, mechanics of materials, micro and nano device design and manufacturing, and machine integration and control. The curriculum incorporates hands-on experiences through laboratory work and design projects. The program provides flexibility to students in customizing their study through three option areas:

- **Micro/Nano Technology**
- **Design and Manufacturing**
- **Mechatronics**

The micro/nano technology option provides education in micro device fabrication, nano-science and its impact on design of the next generation engineering systems. The design and manufacturing option emphasizes Computer Aided Engineering and Manufacturing, micro machining and rapid prototyping through industry-based projects. The mechatronics option concentrates on design of mechanical systems with electronic and computer controls, automation and robotics.

**Educational Objectives**

The goal of our program is to prepare our graduates for professional practice and advanced studies by providing a broad education in mechanical engineering and by offering the opportunity to deepen their technical understanding in a particular concentration area of related technical electives. Our graduates will:

1. **Apply technical knowledge and skills as mechanical engineers to provide optimal solutions in industrial and government organizations.**
2. **Utilize effective communication, team, and project management skills to work productively within their professions and communities.**
3. **Conduct themselves as responsible professionals making contributions in technology for the greater benefit of society.**
4. **Pursue professional development and/or graduate studies to meet the challenging demands and increasing responsibilities of a successful career.**

**Program Outcomes**

Our students will have the following: (1) a knowledge of mathematics, science and engineering principles and the ability to apply this knowledge for solving problems; (2) the ability to design and conduct experiments as well as to analyze and interpret data; (3) the ability to design and realize thermal and mechanical components, systems, or processes to meet desired needs and realistic constraints; (4) the ability to function on multidisciplinary teams; (5) the ability to identify, formulate and solve problems encountered in the practice of mechanical engineering; (6) an understanding of professional and ethical responsibility; (7) the ability to communicate effectively; (8) the ability to understand the impact of engineering solutions in a global, economic, environmental and societal context; (9) a recognition of the need for, and an ability to engage in, life-long learning; (10) a knowledge of contemporary issues; (11) the ability to use the techniques, skills, and modern engineering tools necessary for mechanical engineering practice.

**Certification in the Major**

Certification in a degree program is required by WSU prior to the granting of a baccalaureate degree. Qualification for initial certification, as well as continuation of certified status, will be evaluated based on several criteria including academic integrity, overall GPA, and GPA in mathematics, science, and major core courses. Computer science and mechanical engineering certification will be initiated once the required courses have been completed. Students will be notified of the decision as soon as possible following their application for certification.

When it becomes necessary to limit enrollment, the overall GPA as well as the GPA for the prerequisite courses listed, will be important factors. Students who have not completed all of the prerequisite courses will be placed in a pre-engineering or pre-computer science major. Some courses require students to be certified in their major before enrollment is allowed in those courses. Additional details regarding certification in the major are available from the School of ENCS Academic Coordinator.

**Transfer Students**

The School of Engineering and Computer Science cooperates closely with Washington community colleges to facilitate the transfer of students into its computer science and mechanical engineering programs. Students planning to transfer into the School of ENCS are strongly encouraged to contact the academic coordinator to evaluate the transfer course credits and to help plan the continuation of their academic career at Washington State University Vancouver.

Students will note that a number of the courses offered by the School of ENCS have identical course numbers and similar descriptions to courses offered by the School of Electrical Engineering and Computer Science and the School of Mechanical and Materials Engineering on the Pullman campus. The transfer of course credit between these Schools is not automatic or guaranteed. Students intending to take courses in one School for credit in another are advised to consult with the academic advisor for their degree program, in advance, to assess how the courses may fulfill their degree requirements.

**Preparation for Graduate Study**

The Master of Science in Computer Science program in the School of ENCS is a thesis program and requires 30 credit hours, including 21 hours of
graded course work and 9 credits of thesis research (CS 700). The coursework and research are in the general areas of software engineering, artificial intelligence, computer networks and computer graphics. Sophisticated facilities are available for instruction and research. Teaching and research assistantships are available for qualified students.

Before undertaking graduate study in computer science, the student should have completed a baccalaureate degree substantially similar to the BSCS degree described below in the BSCS schedule of studies. Students from other academic disciplines are encouraged to apply, however such students will be required to take or have taken the equivalent of the following courses: CS 317, 320, 360 and 450. An undergraduate grade point average of 3.0 is a minimum for admission to the MS program.

The Master of Science in Mechanical Engineering program in the School of ENCS is a thesis program and requires a minimum of 30 credit hours. This includes 21 hours of graded coursework beyond the bachelor’s plus minimum 4 thesis credits. The coursework and research are in the general areas of dynamics, robotics, solid mechanics, manufacturing and design, fluid dynamics, heat and mass transfer and micro and nanotechnology. Our laboratories are equipped with state-of-the-art equipment worth more than $4 million. Teaching and research assistantships are available for qualified students.

A Bachelor of Science degree from an accredited program in mechanical engineering provides a good background for the MSME graduate program. Students with bachelor degrees in other engineering disciplines, mathematics, and the physical sciences are routinely admitted, but may be required to make up requisite undergraduate deficiencies. An undergraduate grade point average of 3.0 is a minimum for admission to the MS program.

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

**BACHELOR OF SCIENCE, COMPUTER SCIENCE REQUIREMENTS (VANCOUVER ONLY) (122 HOURS)**

Students who have completed at least 30 semester hours of course work and who have completed CS 121, 122, 216, 214, 223; Math 171, 172; Phil 201; and Phys 201 or their equivalents are eligible for certification into the Bachelor of Science in Computer Science program. All courses required for certification must be completed with a grade of C or better. Enrollment in 400-level computer science courses is restricted to certified majors or minors in computer science and to juniors and seniors certified in other degree programs requiring 400-level computer science courses.

No courses listed in this schedule of studies may be taken on a pass/fail basis. All courses required for certification in the major must be completed with a grade of C or better.

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**BACHELOR OF SCIENCE, ELECTRICAL ENGINEERING REQUIREMENTS (VANCOUVER ONLY) (127 HOURS)**

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### Fourth Year

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Footnotes

¹ 21 credit hours of option area courses are required for completion of the degree program. The option courses are chosen from upper-division computer science and related courses and must be pre-approved by a faculty advisor.

Footnotes

¹ Please see department for an approved list of option areas. Students are required to complete five courses in one option area and four elective courses selected from other option areas, from the list of elective courses, or they may obtain approval from their faculty advisor for other related coursework.
BACHELOR OF SCIENCE, MECHANICAL ENGINEERING REQUIREMENTS  
(VANCOUVER ONLY) (128 HOURS)

Students who have completed at least 30 semester hours of course work and who have completed Chem 106; Engl 101; Math 220, 273, 315; Mech 211, 212, 215; and Phys 202 or their equivalents are eligible for certification into the Bachelor of Science in Mechanical Engineering program. All courses required for certification must be completed with a grade of C or better. Enrollment in many upper-division mechanical engineering courses is restricted to certified majors or minors in mechanical engineering. No courses listed in this schedule of studies may be taken on a pass/fail basis. All courses required for certification in the major must be completed with a minimum 2.0 average GPA.

First Term Hours
First Term  
Arts & Humanities [H,G] (GER) 3  
Chem 105 [P] (GER) 4  
GE 110 [A] (GER) 3  
Math 171 [N] (GER) 4  
Mech 101 2
Second Term Hours
Chem 106 4  
Engl 101 [W] (GER) 3  
GE 111 [A] (GER) 3  
Math 172 4  
Mech 103 3

Second Year
First Term Hours
CS 251 2  
EconS 101 [S] or 102 [S] (GER) 3  
Math 220 2  
Math 273 2  
Mech 211 3  
Phys 201 [P] (GER) 4
Second Term Hours
Biological Sciences [B] (GER) 3  
Math 315 3  
Mech 212 3  
Mech 215 3  
Phys 202 [P] (GER) 4
Complete Writing Portfolio

Third Year
First Term Hours
Mech 301 3  
Mech 304 3  
Mech 309 3  
Mech 313 3  
Stat 360 3
Second Term Hours
Mech 303 3  
Mech 310 3  
Mech 314 4  
Mech 348 3  
400-level Mech Option Course 1 3

Fourth Year
First Term Hours
Engl 402 [W] (GER) 3  
Mech 404 3

Mech 414 3  
Mech 416 2  
400-level Mech Option Course 1 3  
400-level Mech Technical Elective 1 3

Second Term Hours
Intercultural Studies [I,G,K] (GER) 3  
Mech 402 3  
Mech 417 3  
Tier III Humanities or Social Science Course [T,D] (GER) 3  
400-level Mech Option Course 1 3

Footnotes  
1 The program emphasizes fundamentals and provides flexibility in selecting a course of study through four technical electives. Students can either take any four elective courses, provided they meet the prerequisites, or they can choose to take a set of three related electives comprising an option area and a fourth elective of their choice. Students are required to work with their faculty advisor to develop their schedule of studies as they are admitted to the program at the junior level. The following are the technical elective courses and option areas: (Option 1) Micro and Nanotechnology: Mech 431, 438, 450; (Option 2) Design and Manufacturing: Mech 425, 476, 485; (Option 3) Mechatronics: Mech 405, 467, 468.

Minors

Computer Science

The minor in computer science consists of 20 credit hours that must include CS 121, 122, 223 and three 300-400 level CS courses taken in residence at WSU or through WSU-approved education abroad or educational exchange courses., excluding CS 402. All prerequisites for minor courses must be met. All courses must be completed with a grade of C or better. The minor course of study must be pre-approved by the computer science academic coordinator.

Mechanical Engineering

A minor in mechanical engineering requires 16 credits of 300-400 level Mech courses, including two of the following four courses: Mech 303, 348, 404, 414. All prerequisites for minor courses must be met. All courses must be completed with a minimum 2.0 average GPA. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

Description of Courses

Computer Science - Vancouver Courses

Enrollment in 400-level computer science courses is restricted to certified majors or minors in computer science and to juniors and seniors officially certified in other degree programs requiring these computer science courses.

CS

121 Program Design and Development 4 (3-3)  
Prereq Math 107, 201 or satisfactory math placement score. Formulation of problems and top-down design of programs in a modern structured language for their solution on a digital computer.

122 Data Structures 4 (3-3) Prereq CS 121 or equivalent. Advanced programming techniques: data structures, recursion, sorting and searching, and basics of algorithm analysis.

214 Design of Logic Circuits 3 (2-3) Prereq CS 121 or 251. Design and application of combinational logic circuits with exposure to modern methods and design tools; introduction to sequential logic circuits.

216 Discrete Structures 3 Prereq Math 107; Phil 201; a programming course. Same as Math 216.

223 Advanced Data Structures 3 Prereq CS 122; CS 216 or equivalent. Advanced data structures, object oriented programming concepts, concurrency, and program design principles.

224 Programming Tools 2 Prereq CS 122. Debugging tools, scripting languages, UNIX programming tools, introduction to graphical user interface programming.

234 Microprocessor Systems 3 (2-3) Prereq CS 122; CS 214. Microprocessor system architecture, instruction sets and interfacing; assembly language programming.

251 C Programming Language 2 Prereq Math 171 or c//. Comprehensive programming practice using C.

253 Java Programming Language 3 Prereq CS 121, 153, or 251. Comprehensive programming practice using Java.

317 Automata and Formal Languages 3 Prereq CS 122; CS 216. Finite automata, regular sets, pushdown automata, context-free language, Turing machines and the halting problem.

320 [M] Fundamentals of Software Engineering 3 Prereq CS 224; CS 216; c// in Engl 402. Introduction to software engineering: requirements analysis, definition and specification; software process models; prototyping; architecture; object-oriented design with UML.

330 Numerical Computing 3 Prereq CS 121 or 251; Math 172; Math 220. Power and limitation of numerical solutions; design, analysis and implementation of numerical algorithms; visualization and rendering.

355 Programming Language Design 3 Prereq CS 223; CS 224. Design concepts of high-level programming languages; survey of existing languages, experience using some languages.

360 Systems Programming 4 (3-3) Prereq CS 223; CS 224; CS 234. Implementation of systems programs, concepts of computer operating systems; laboratory experience in using operating system facilities.
402 [M] Social and Professional Issues in Computer Science 3 Prereq CS 121; certified in computer science; completion of University Writing Portfolio. Social, legal, ethical and professional issues that arise in the context of computing.

420 [M] Software Engineering in Practice 3 Prereq CS 320. Development of software in a team environment; project management; unit and integration testing, bug tracking, configuration management, software process models; object-oriented design with UML.

427 Computer Security 3 Prereq CS 216; CS 360. Computer security concepts, models and mechanism; encryption technology, formal models, policy and ethical implications. Credit not granted for both CS 427 and 527.

440 Artificial Intelligence 3 Prereq CS 320; Stat 360 or Math 212. Knowledge representation and automated problem solving; theory and application of agent programming.

442 Computer Graphics 3 Prereq CS 223; CS 224; Math 220. Raster operations; transformations and viewing; geometric modeling; visibility and shading; color. Credit not granted for both CS 442 and 542.

443 Human-Computer Interaction 3 Prereq junior standing. Introduction to the field of human-computer interaction; understanding the system user; user-centered design and evaluation techniques including heuristic evaluation and usability testing.

447 Computer Game Design 3 Prereq CS 223; CS 420 or c//. Design and implementation of computer games. Credit not granted for both CS 447 and 547.

450 Design and Analysis of Algorithms 3 Prereq CS 223; Stat 360. Analysis of data structures and algorithms; computational complexity and design of efficient data-handling procedures.

451 Introduction to Database Systems 3 Prereq CS 223; CS 224. Introduction to database concepts, data models, database languages, database design, implementation issues.

452 Compiler Design 3 Prereq CS 317; CS 355. Design of lexical analyzers, syntactic analyzers, intermediate code generators, code optimizers and object code generators.

455 Introduction to Computer Networks 3 Prereq CS 360. Concepts and implementation of computer networks; architectures, protocol layers, internetworking and addressing case studies.

460 Operating Systems and Computer Architecture 3 Prereq CS 360. Operating systems, computer architectures, and their interrelationships in micro, mini, and large computer systems.

464 Distributed Systems Concepts and Programming 3 Prereq CS 360. Concepts of distributed systems: naming, security, networking, replication, synchronization, quality of service; programming middleware including CORBA, XML, DCOM/SOAP. Credit not granted for both CS 464 and 564.

466 Embedded Systems 3 (2-3) Prereq CS 360. Design and development of real-time and dedicated software systems with an introduction to sensors and actuators. Credit not granted for both CS 466 and 566.

471 Professional Programming Problems and Practice 3 Prereq CS 320; CS 360; senior standing. Application of OOP techniques to a variety of challenging, real world problems; industrial program development processes, peer reviews and interpersonal skills presented and exercised.

483 Topics in Computer Science V 1-4 May be repeated for credit. Prereq CS 320. Current topics in computer science or software engineering.

490 Work Study Internship V 1-9 May be repeated for credit; cumulative maximum 9 hours. Prereq CS 224; CS 234; computer science major; by interview only. Experience in programming and systems analysis in a working environment under supervision of industrial or governmental professionals and faculty. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

500 Computer Science Seminar 1 Faculty research interests, departmental computer systems, computer science research, report preparation. S, F grading.

516 Algorithmics 3 Prereq CS 450. Discrete structures, automata, formal languages, recursive functions, algorithms, computability, and complexity.

521 Software Engineering Analysis 3 Prereq CS 320. Research in software engineering; application of quantitative techniques in the software life cycle; current software engineering literature; exploration of techniques of mathematical modeling and solutions to software engineering problems.

522 Software Reuse 3 Prereq CS 420. Basic principles of software reuse, compositional and generative reuse, with specific topics selected from current literature, reverse engineering.

527 Computer Security 3 CS 216; CS 360. Graduate-level counterpart of CS 427; additional requirements. Credit not granted for both CS 427 and 527.

534 Neural Network Design and Application 3 Prereq graduate standing. Graduate-level counterpart of CS 434; additional requirements. Credit not granted for both CS 434 and 534.

541 Artificial Intelligence 3 Prereq CS 440. Intelligent computer programs; simulation of cognitive processes.

542 Computer Graphics 3 Prereq graduate standing. Graduate-level counterpart of CS 442; additional requirements. Credit not granted for both CS 442 and 542.

547 Computer Game Design 3 Prereq CS 223; CS 420 or c//. Graduate-level counterpart of CS 447; additional requirements. Credit not granted for both CS 447 and 547.

548 Advanced Computer Graphics 3 Prereq CS 442. Solid modeling, visual realism, light and color models, advanced surface generation techniques.

550 Parallel Computation 3 Prereq CS 450. Parallel machine models, principles for the design of parallel algorithms, interconnection networks, systolic arrays, computational aspects to VLSI.

558 Wireless Sensor Networks 3 Prereq CS 455 or c//. Design and implementation of sensor networks.

564 Distributed Systems Concepts and Programming 3 Prereq CS 360. Graduate-level counterpart of CS 464; additional requirements. Credit not granted for both CS 464 and 564.

566 Embedded Systems 3 (2-3) Prereq graduate standing. Graduate-level counterpart of CS 466; additional requirements. Credit not granted for both CS 466 and 566.

570 Machine Learning 3 Prereq CS 122; graduate standing. Introduction to building computer systems that learn from their experience; classification and regression problems; unsupervised and reinforcement learning.

580 Advanced Topics in Computer Science 3 May be repeated for credit.

595 Directed Study in Computer Science V 1-3 Current topics in computer science.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

Electrical Engineering -- Vancouver Courses

Enrollment in many upper-level electrical engineering courses is restricted to certified majors or minors in electrical engineering.

ECE

101 Introduction to Electrical Engineering 2 (1-3) Prereq Math 171. Introduction to the field of electrical engineering and the fundamental concepts behind electronic devices and systems.

214 Design of Logic Circuits 3 (2-3) Prereq CS 121 or CS 251. Design and application of combinational logic circuits with exposure to modern methods and design tools; introduction to sequential logic circuits.

234 3 (2-3) Microprocessor Systems Prereq CS 122; CS 214. Microprocessor system architecture, instruction sets and interfacing; assembly language programming.

260 Circuit Modeling and Analysis 1 4 (3-3) Prereq Phys 202; Math 315 or c//. Circuit modeling, analysis, component models, theory and simulation tools; application of network theory to solve linear and nonlinear circuits under static and dynamic operation.

295 Digital Communications 1 3 Prereq ECE 214; ECE 260 or c//. Hardware and protocols for digital communications systems; Ethernet, ATM, physical and media access layer; encoding and modulation techniques.
302 Properties of Electronic Materials 3
Prereq Chem 105; Phys 202. Schroedinger's wave equation, potential barrier problems, crystal structure and bonds, band theory of solids, semiconductors, super conductor, dielectric and magnetic material properties.

321 Circuit Modeling and Analysis II 3
Prereq ECE 260. Laplace transforms, Fourier analysis, state space analysis, two port networks.

324 Digital Design II 3 (2-3)
Prereq ECE 234. Implementation of datapaths and controllers, use of HDLs and synthesized tools, field programmable gate arrays and simulation; integrated circuit layout.

325 Electronic Devices and Applications 4
(3-3) Prereq ECE 214; ECE 260. MOS small and large signal models, bipolar transistors, biasing and parasitics, amplifier design and feedback, frequency response; circuit simulation and device models.

341 Signals and Systems 3
Prereq ECE 321. Discrete and continuous systems, sampling, convolution, Fourier and Z transforms, modulation; introduction to distributed parameter systems.

345 Digital Communications II 3
Prereq ECE 295; Stat 360 or c//. Digitally modulated signals and their spectral characteristics, modulation/demodulation techniques, coherent/non-coherent detection methods; source and channel coding, spread-spectrum and multiple access techniques.

349 Principles of Solid State Devices 3
Prereq ECE 302; ECE 325. Semiconductor theory; carrier diffusion and drift, direct and indirect energy materials, homo and heterojunctions, operations principles of bipolar junctions and MOS field effect transistors, metal-semiconductor contacts.

366 Introduction to VLSI Design 3 (2-3)
Prereq ECE 324; ECE 325. CMOS devices and deep-submicron fabrication technology; interconnect modeling, power and clock distribution, area, power and speed optimization.

370 Electromagnetic Fields and Waves 3
Prereq ECE 260. Electrostatic and magnetostatic fields; Faraday's laws, Maxwell's equations, electromagnetic properties of matter, uniform plane waves and transmission lines.

405 [M] Professional Issues and Ethics in Electrical Engineering 3
Prereq certified major in electrical engineering; completion of University Writing Portfolio. Social, legal and professional issues that arise in the context of electrical engineering.

411 Energy Systems 3 (2-3)
Prereq ECE 321. Investigation and analysis of the design, tradeoffs and efficiency of conventional and alternative energy sources; energy transmission, storage and conversion systems.

414 Introduction to Digital Signal Processing 3 (2-3)

424 Computer Architecture and Design 3
(2-3) Prereq ECE 324; ECE 366. Architectural approaches to computer instruction sets and organization; design, analysis and simulation of student computer designs; implementation and testing of designs in an FPGA.

425 RF Devices and Circuits 3 (2-3)
Prereq ECE 341; ECE 370. Semiconductor devices and circuit design targeting wireless applications.

451 Electrical Engineering Project Management 3 (1-6)
Prereq Engl 402 or 403; Mech 212. Execution phase of the senior design project course sequence; independent or team project proposed in ECE 451 is designed and implemented.

471 Antenna Design and Analysis 3 (2-3)
Prereq ECE 425. Antenna types and radiation, wire antennas, antenna arrays broadband and aperture antennas; theory and simulation of antenna performance, laboratory testing and measurement.

475 Optical-Optical Devices and Systems 3
Prereq ECE 370; Stat 360. Electromagnetic reflection and refraction, waveguide theory; theory and application of optical source and sensor devices; coupling, dispersion and loss in waveguides and optical fiber.

476 Computer-aided Design for VLSI 3 (2-3)
Prereq ECE 366. Algorithms and design flows for VLSI design synthesis and verification.

477 VLSI Testing and Design for Test 3 (2-3)
Prereq ECE 366. Test pattern generation for digital devices, controllability and observability; tester characteristics and capabilities; fault modeling and analysis of test coverage; built-in self-test techniques.

483 Topics in Electrical Engineering V 1-4
May be repeated for credit; cumulative maximum 9 hours. Prereq junior standing; certified major in electrical engineering. Current topics in electrical engineering.

486 Solid State Device Design and Modeling 3 (2-3)
Prereq ECE 349. Cross-sectional design of CMOS devices; simulation and optimization of device design using CAD tools for process integration; devicemodel extraction for circuit simulation and parametric testing.

490 Work Study Internship V 2-4
May be repeated for credit; cumulative maximum 8 hours. Prereq by interview only. Experience in electrical engineering and systems analysis in a working environment under supervision of industrial or governmental professionals and faculty. S, F grading.

495 Wireless and Mobile Communications Systems 3 (2-3)
Prereq ECE 345; ECE 414; ECE 425. Wireless communication emphasizing cellular and multiple access communication; RF environment, duplexing and multiple access, cellular, mobile systems; standards and applications; wireless ad hoc networks.

499 Special Problems V 1-4
May be repeated for credit. Prereq by interview only. S, F grading.

Mech

101 Introduction to Mechanical Engineering 2
Introduction to mechanical engineering profession, engineering problem solving, computers in engineering design methods.

103 Engineering Graphics 3 (1-6)
Orthographic theory, conventions, and visualization; isometric and oblique pictorials; geometric dimensioning and tolerancing, computer-aided drafting and solid modeling.

211 Statics 3
Prereq Math 172 or c//; Phys 201 or c//. Static equilibrium analysis of particles and rigid bodies, free-body diagrams, moment diagrams, friction, center of gravity, moments of inertia.

212 Dynamics 3
Prereq Mech 211. Kinematics and kinetics of particles and rigid bodies; Newton's second law of motion; work-energy concept; impulse and momentum.

215 Mechanics of Materials 3
Prereq Mech 211. Concepts of stress, strain, and their relationships; axial, torsion, bending, and combined stresses; properties of materials; columns and strain energy method.

301 Thermodynamics 3
Prereq Phys 201. Rec Math 220, 315. Thermodynamic properties of matter, ideal and real gases, work and heat, first and second laws and their application to engineering systems.

303 Fluid Mechanics 3
Prereq Mech major; Mech 212; Mech 301 or c//. Physical properties, fluid statics, laminar and turbulent flow, impulse and momentum, similitude, pipe flow, boundary layers, lift, drag and measurement techniques, fluid experiments.

304 Instrumentation and Measurement 3 (2-3)
Prereq Math 251; Math 220 or c//; Math 315 or c//; Phys 202. Introduction to DC and AC circuits, analog electronic components, digital circuits, computer data acquisition and engineering measurements.

309 Introduction of Engineering Materials 3 (2-3)
Prereq Chem 106; Phys 201 or c//. Structure of materials, phase equilibrium, phase transformations, mechanical failure, and mechanical properties; materials testing laboratory.
431 Semiconductor Devices 3 Prereq Chem 106; Phys 202, Math 315. Crystal properties, energy bands, semiconductor charge carriers, p-n junctions, field-effect transistors, bipolar junction transistors, optoelectronic devices, integrated circuits.

438 Microfabrication Technology 3 Prereq Chem 106; Math 315; Phys 202. Microelectronic fabrication technology, semiconductor material, diffusion, thermal oxidation, ion implantation, lithography, etching, thin film deposition, CMOS integration and MEMS. Credit not granted for both Mech 438 and 538.

442 Advanced Thermal Systems 3 Prereq Mech 404. Analysis and design of advanced thermal systems at macro, mini and micro scales; applied design software packages; design projects. Credit not granted for both Mech 442 and 542.


467 Automation 3 (2-3) Prereq Mech 304; Mech 348. Automation systems, discrete event control using programmable logic controllers (PLC), robot programming, process control. Credit not granted for both Mech 467 and 567.

468 Robotics 3 Prereq Mech 304; Mech 348. Industrial robots, kinematics, control, robot programming, interfacing, sensors, actuators, vision systems and mobile robots. Credit not granted for both Mech 468 and 568.

476 Advanced Manufacturing Engineering 3 Prereq Mech 310. Advanced topics in manufacturing processes, including interrelationships between the properties of the material, the manufacturing process and design of components. Credit not granted for both Mech 476 and 576.

485 Computer-aided Engineering 3 Prereq Mech 310 or c//; Mech 313. Introduction to the use of finite element techniques in engineering product design and analysis; basic concepts and applications in CAE. Credit not granted for both Mech 485 and 585.

489 Material Failure in Mechanical Design 3 Prereq Mech 215; Mech 309. Analysis, design and prevention from failure of materials in mechanical design; mechanical behavior of materials such as fatigue, fracture and wear. Credit not granted for both Mech 489 and 589.

495 Internship in Industry 3 or 6 May be repeated for credit; cumulative maximum 12 hours. Prereq major mechanical engineering. Students work full time on engineering assignment in approved industries with industrial and faculty supervision. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

509 MEMS Engineering 3 (2-3) Prereq graduate standing or permission of instructor. Introduction to the design, fabrication and application of microelectromechanical systems.

515 Advanced Heat Transfer 3 Prereq graduate standing; Mech 404 or c//. Energy conservation equations; forced convection with internal and external flow, free convection, boiling and condensation, mass transfer, numerical methods.

521 Fundamentals of Fluids I 3 Prereq graduate standing; Math 315; Mech 303 or c//. Mass and momentum conservation equations, Navier-Stokes equations, compressible flows, inviscid-potential flows, advanced viscous flows including boundary layer numerical methods.

532 Finite Elements 3 Prereq graduate standing. Theory of finite elements; applications to general engineering systems considered as assemblages of discrete elements.

538 Microfabrication Technology 3 Prereq graduate standing; Chem 106; Math 315; Phys 202. Graduate-level counterpart of Mech 438; additional requirements. Credit not granted for both Mech 438 and 538.

540 Advanced Dynamics 3 Prereq graduate standing; Mech 212. Newtonian dynamics, rotating coordinate systems; Lagrangian and Hamiltonian mechanics, gyroscopic mechanics, other applications.

550 Micro and Nano Technology 3 (2-3) Prereq graduate standing; Mech 431 or c//. Graduate-level counterpart of Mech 450; additional requirements. Credit not granted for both Mech 450 and 550.

567 Automation 3 (2-3) Prereq graduate standing; Mech 304; Mech 348. Graduate-level counterpart of Mech 467; additional requirements. Credit not granted for both Mech 467 and 567.

568 Robotics 3 Prereq graduate standing; Mech 304; Mech 348. Graduate-level counterpart of Mech 468; additional requirements. Credit not granted for both Mech 468 and 568.

574 Foundations of CAD 3 Prereq graduate standing. Topics fundamental to the creation of CAD, engineering visualization, and virtual reality based engineering software.

575 Geometric Modeling 3 Prereq graduate standing. Study of the mathematics behind the creation of complex shapes for CAD using curves, surfaces, and solids.

576 Advanced Manufacturing Engineering 3 Prereq graduate standing; Mech 310. Graduate-level counterpart of Mech 476; additional requirements. Credit not granted for both Mech 476 and 576.

579 Advanced Topics in Design and Manufacturing V 1-3 May be repeated for credit. Prereq graduate standing.

598 Seminar 1 May be repeated for credit. Prereq graduate standing. Current research interests. S, F grading.
600 Special Projects or Independent Study
Variable credit S, F grading.

700 Master's Research, Thesis, and/or Examination
Variable credit S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination
Variable credit S, F grading.

Engineering and Technology Management Program

www.engrmgt.wsu.edu
ETRL 336
509-335-0125

Program Director: J. A. Ringo; Teaching Faculty: W. J. Gray, R. J. Holt, E. R. Ladd; Adjunct Instructors: R. Crick, G. Sudikatus.

Engineering management is a graduate program designed to help technical professionals become effective managers. The program is administered by the College of Engineering and Architecture. Management training is integrated with upgraded technical skills to meet industry needs for the management of technology and the management of technical professionals. Formerly one program with two options, the program now provides an integrated education in technical decision-making and leadership for industry employees and allows business and engineering employees to learn together in common courses.

This interdisciplinary master’s degree is offered to industries in the Puget Sound area via remote classrooms or webstreaming and to other high-tech firms around the country and around the world via webstreaming; and live at WSU Spokane, WSU Tri-Cities, and WSU Vancouver. Classes are offered at times convenient for the working professional. Each ETM class is broadcast over the web at the same time the live session is presented in our studio classroom. The videostream for each class is also archived, and is available for review during the entire semester. Courses are presented and managed using WebCT, a web-enabled course hosting platform. Students bring a significant amount of experience and diversity into the academic arena from a variety of engineering and management backgrounds.

The college also offers the following certificates: General Engineering Management; Six Sigma Quality Management; Project Management; Manufacturing Leadership; Constraints Management; Supply Chain Management; Systems Engineering Management; and Construction Project Management.

Program Requirements

The master’s program with a nonthesis option consists of 32 credit hours including a minimum of 30 credit hours of approved graded course work and a minimum of 2 credit hours of Master’s Special Problems. There is both a project and an exam option. The program of studies leads to a Master of Engineering and Technology Management degree. New Core Requirements effective Fall 2008 allow students to choose one course from each of the six core areas Managing Organizations and People (E M 501, 522), Managing Financial Resources (E M 505, 545, 590), Managing with Analytical Methods (E M 540, 460), Managing Projects (E M 564, E M 520), Managing Variability (Stat 430, E M 580, E M 585), and Managing Strategy (E M 526, E M 575, E M 591). Four additional courses can be chosen as electives—from any area, both core and elective. Electives include E M 508, 517, 530, 534, 538, 555, 565, 566, 570.

Each certificate also requires 12 credits.

Admission Requirements

Students who apply to the Master of Engineering and Technology Management degree program will have earned a Bachelor of Science degree from an accredited school with a minimum GPA of 3.0. Applicants with undergraduate degrees in other fields, particularly mathematics, physics, or business, who are working in technical fields may be accepted for this program. Prospective students must provide three letters of recommendation, a resume showing relevant work experience, and a brief personal statement outlining the appropriateness of the program in light of career goals and work history.

For information on the certificate program, please contact the Pullman office, 509-335-0125.

Description of Courses

Engineering Management Courses

E M

426 Constraints Management 3 Identifies factors that block improvements in any system; effective breakthrough solutions; continual systems improvements for manufacturing, administration, projects. Credit not granted for both E M 426 and 526.

430 Applications of Constraints Management 3 Understanding and applying proved solutions developed by the theory of constraints in areas of production, project management, finance, and distribution. Credit not granted for both E M 430 and 530.

460 Integrated Supply Chain Management 3 Prereq junior standing. Concepts and techniques for design and managing manufacturing and service, operations intended to develop a world class organization.


480 Quality Control and Reliability 3 Rec Stat 430. Quality analysis, modeling process, product quality, statistical process control, process capability studies; sampling concepts, reality models, predictions, design testing. Credit not granted for both E M 480 and 580.

485 Quality Engineering Using Design of Experiments 3 Rec Stat 430. Design for quality improved products; processes and services using designed experiments, including robust/parameter design. Credit not granted for both E M 485 and 585.

490 Design for Product and Service Realization 3 Prereq junior standing. Techniques and tools to optimize cost, quality, time to market, and to improve comprehensive product design, manufacturability and service components. Credit not granted for both E M 490 and 590.

501 Management of Organizations 3 Exploration of issues related to individual behavior in work organizations, including motivation, leadership, team-building, and team management skills.


508 Legal Concepts for Engineering and Technical Managers 3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Basic legal obligations of engineering/technical managers; identify, minimize and recognize risks and liability; contemporary legal environment and business law.

517 Simulation Modeling of Engineering Systems 3 Rec Stat 430; experience with computer programming. Analyzing and developing representative models for complex systems such as project or operations management using a variety of simulation styles.

520 Construction Project Management 3 Prereq graduate standing. Construction project bids, proposals, contracts, project delivery/organization; estimating, scheduling, resource loading, project monitoring and controls, safety and quality.

522 Supervision and Leadership for Engineering and Technology Managers 3 Prereq graduate standing. Strategies of supervision with practical application techniques presented to create individual and organizational motivation.

526 Constraints Management 3 Graduate-level counterpart of E M 426; additional requirements. Credit not granted for both E M 426 and 526.

530 Applications of Constraints Management 3 Graduate-level counterpart of E M 430; additional requirements. Credit not granted for both E M 430 and 530.

534 Contemporary Topics in Constraints Management 3 May be repeated for credit; cumulative maximum 6 hours. Prereq E M 526 or 530. Contemporary teaching tools, software packages, current techniques and thought in managing complex systems using the theory of constraints.

538 Lean Agility 3 3 Prereq graduate standing. Integration of the best of Lean, Six Sigma, and Theory of Constraints to accelerate the continuous improvement process.
591 Strategic Management of Technology and Innovations in Engineering 3
Prereq graduate standing. Management of technological innovation; integrating strategy, new product development, corporate entrepreneurship, and innovation; features action-oriented cases.

595 Advanced Topics in Engineering Management I V 1-3 May be repeated for credit; cumulative maximum in E M 595 and 596, 9 hours. A wide range of current high-interest engineering management topics.

596 Advanced Topics in Engineering Management II 3 May be repeated for credit; cumulative maximum in E M 595 and 596 is 9 hours. A wide range of current high-interest engineering management topics.

600 Special Projects or Independent Study
Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination
Variable credit. S, F grading.

Department of English
libarts.wsu.edu/english
Avery 202, Pullman campus
509-335-2581


Majors in English provide students with a broad critical and cultural understanding of literature and literary studies, and emphasize the writing and analytical skills that are vital to success in the university, in professional and graduate school, and in the workplace. The program of study is flexible and allows English majors to focus on particular areas of intellectual interest, to pursue electives, minors, and second majors in other departments, and to shape their academic careers in line with professional and personal interests. The curriculum is designed for (1) students who desire a broad education emphasizing language and literature, (2) students who wish to teach or to prepare for graduate studies in literature or rhetoric and composition, (3) students who intend to use the background and skills learned in the major as a foundation for careers in writing, editing, law, business, or public service. The curriculum provides majors the opportunity to complete their studies with a small discussion seminar or senior project in their area of emphasis.

Majors in English are expected to learn to read literary and cultural texts carefully and critically; to produce a variety of high-quality creative and critical texts using appropriate technologies that contribute to literary and cultural discourses; to develop abilities in critical reading, writing, and thinking necessary to communicate successfully with audiences both within and outside the university; and to explore the record of the human experience in language.

Students who are preparing to teach English in the public schools of Washington should examine the summary of requirements for majors and minors listed in the Department of Teaching and Learning in this catalog, and they should confer with the College of Education concerning the requirements for certification.

The Department of English offers courses of study leading to the degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy (English). The department participates in the interdepartmental program in American Studies leading to the degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy (American Studies). Students interested in the Bachelor of Arts in this interdisciplinary field should consult the requirements listed under Program in American Studies. English also participates in the Digital Technology and Culture program, which offers an interdisciplinary course of study leading to the Bachelor of Arts degree. Students interested in this field should consult the requirements listed under Digital Technology and Culture. Students interested in interdisciplinary degrees in areas such as linguistics, humanities, and classical studies should consult the requirements within the Program in General Studies. Students may now also do an English degree consisting primarily of international literature, philosophy, art, architecture, and music courses from the Humanities sequence offered jointly by the departments of Foreign Languages and English, within the Literary Studies option described below.

English Major Options
Four programs are offered for the English major, all leading to the degree of Bachelor of Arts in English.

Option I: Literary Studies is for students who desire a general liberal arts education emphasizing literature, critical thinking, and writing; and for those preparing for graduate education in English or literary studies. English is often selected as a major by students with double majors or minors in other departments.

Option II: Rhetoric and Professional Writing is for students preparing for careers in business, public service, law, or other professions requiring writing and reading skills. It is also suitable for those seeking careers in higher education specializing in rhetoric and composition.

Option III: Teaching is for students who need specific training in the teaching of language and literature at the secondary level; it is coordinated with the Department of Teaching and Learning.

Option IV: Creative Writing is for students interested in creative writing in various forms (poetry, fiction, nonfiction prose), in editing and publishing, and in careers drawing on related creative and professional skills.

Digital Technology and Culture
Digital technology and culture is an interdisciplinary degree program that integrates humanities, social sciences, and technology in a critical and creative framework designed to meet individual student interests as well as the needs of
contemporary audiences and employers. Digital technology and culture majors work at the frontier of today's technology, while learning the importance of technological history and preparing themselves to live in and understand a culture increasingly influenced by technology. If you are interested in mixing art and technology, in language and culture, and in persuasion and effective communication then DTC is the major for you. For further information, consult the separate entry for “Digital Technology and Culture.”

Preparation for Graduate Study

Students interested in a graduate program in English at Washington State University should offer preparation in English courses generally approximating one of the first three undergraduate programs described above. Students with undergraduate majors in such subjects as philosophy, foreign languages, and history may also be accepted for graduate study in the department. Students preparing for degrees which require a foreign language reading competency should begin studying a qualifying language before entering graduate school. See the “Language Requirements” page on the Department of English Graduate Studies Web site for further details.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

I. ENGLISH - LITERARY STUDIES (120 HOURS)

Requirements in this degree include fifteen hours of core classes (302, 370, 371, 372, and 373), fifteen hours 300-400 level English literature or Humanities classes, at least six of them at the 400 level, and six hours of electives in English or Humanities at any level, excluding Engl 201. One of these must be an advisor-approved writers-of-color class. Total: 36 hours.

First Year

First Term Hours
Arts & Humanities [H,G] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math Proficiency [N] (GER) 3
Science Elective (GER) 4

Second Term Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Biological Sciences [B] (GER) 4
GenEd 111 [A] (GER) 3
Social Sciences [S,K] (GER) 3
Elective (English or Humanities recommended) 3

Second Year

First Term Hours
Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 6
Engl 302 [M] [W] (GER) 3
English or Humanities Elective 3
Physical Sciences [P] (GER) 4

Second Term Hours
Engl 370, 371, 372, or 373 6
Intercultural Studies [I,G,K] (GER) 3
Electives 6
Complete Writing Portfolio

Third Year

First Term Hours
Engl 370, 371, 372, or 373 6
300-400 Level Literature or Humanities Elective 3
Electives 6

Second Term Hours
300-400 Level Literature or Humanities Electives 6
Electives 9

Fourth Year

First Term Hours
300-400 Level Literature or Humanities Elective 3
Engl Senior Seminar or 400-Level Literature or Humanities Elective 3
Electives 9

Second Term Hours
Engl Senior Seminar or 400-Level Literature or Humanities Elective 3
Tier III [T] (GER) 3
Electives 6

Footnotes
1 At least one from Hum 101, 103, 302, 303, 304, 335, 350, 410, or 450 is required. Upper-division Hum courses are not recommended for first-year students.

II. ENGLISH - RHETORIC AND PROFESSIONAL WRITING OPTION (120 HOURS)

Requirements in this degree are a core of eighteen hours of 300-400 level classes, twelve to eighteen hours of electives from the list of approved courses, and the option of one or two electives – with the approval of advisor – of any English or Humanities course at any level. Required courses/core (18 hours): 301, 302, 360, 362, and 460 or 461 (Prerequisite of Engl 402 or 403 required for 461). One transnational lit course (chosen in consultation with advisor) from 370, 371, 372, 373, 460, or 461. Electives (18 hours): 308, 336, 354, 355, 358, 361, 363, 375, 401, 402, 405, 410, 458, 461, 475, 476, 495, any creative writing course deemed appropriate by CW faculty, the student, and her or his advisor.

First Year

First Term Hours
Arts & Humanities [H,G] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math Proficiency [N] (GER) 3
Science Elective (GER) 4

Second Term Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Biological Sciences [B] (GER) 4
GenEd 111 [A] (GER) 3
Math Proficiency [N] (GER) 3
Elective 4

Footnotes
1 At least one from Hum 101, 103, 302, 303, 304, 335, 350, 410, or 450 is required. Upper-division Hum courses are not recommended for first-year students.
2 Prerequisite of 402 or 403 required for Engl 461.

III. ENGLISH - TEACHING OPTION (124 HOURS)

First Year

First Term Hours
Arts & Humanities [H,G] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Science Elective (GER) 4

Second Term Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Biological Sciences [B] (GER) 4
GenEd 111 [A] (GER) 3
Math Proficiency [N] (GER) 3

Second Year

First Term Hours
Engl 302 [M] [W] (GER) 3
Engl 326 3
Physical Sciences [P] (GER) 4
Psych 105 [S] (GER) 3

Footnotes
Third Year

**First Term**

- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Engl 325 3
- Engl 370 [H], 371 [H], 372 [H], or 373 [H] (GER) 3
- English or Humanities Elective 3
- T & L 301 2

**Second Term**

- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Engl 324 3
- T & L 317 2
- Tier III Course [T] (GER) 3

**Fourth Year**

**First Term**

- Engl 323 3
- English or Humanities Elective 3
- T & L 464 3
- T & L 465 3
- T & L 466 2

**Second Term**

- EdPsych 468 3
- English or Humanities Elective 3
- T & L 467 3
- T & L 469 2
- T & L 470 3

**Fifth Year**

**First Term**

- T & L 415 16

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**Footnotes**

1. At least one from Hum 101, 103, 302, 303, 304, 335, 350, 410, or 450 is required. Upper-division courses are not recommended for first-year students.
2. Required for admission to the certification program.
3. Must include one Engl [M] course.

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**IV. ENGLISH - CREATIVE WRITING OPTION**

**120 HOURS**

Requirements in this option involve 39-credit hours, approximately half in creative writing and related professional courses, the remainder in supporting literature courses approved by the advisor. In addition to these requirements, students are urged to elect GER courses in American and world cultures, history, and society to round out the liberal arts education that they will bring to careers in creative writing, editing, publishing, and related fields.

**First Year**

**First Term**

- Arts & Humanities [H,G] (GER) 3

**Second Term**

- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Math Proficiency [N] (GER) 3
- Science Elective (GER) 4

**Second Year**

**First Term**

- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Biological Sciences [B] (GER) 4
- Engl 251 3
- GenEd 111 [A] (GER) 3
- Social Sciences [S,K] (GER) 3

**Second Term**

- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Physical Sciences [P] (GER) 4
- Elective (literature course recommended) 3

**Third Year**

**First Term**

- Engl 446 3
- Literature Elective (300-400-level Engl or Hum) 3
- Electives 9

**Second Term**

- Engl 451 or 452 3
- Writers of Color 3
- Electives 9

**Fourth Year**

**First Term**

- Engl 355, 357, or 402 (or Engl 498 or 499 with advisor approval) 3
- Literature Elective (400-level Engl or Hum) 3
- Tier III Course [T] (GER) 3
- Electives 6

**Second Term**

- Creative Writing or Literature Elective, Engl or Hum 3
- Engl 451 or 452 3
- Electives 6

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**Footnotes**

1. At least one from Hum 101, 103, 302, 303, 304, 335, 350, 410, or 450 is required. Upper-division courses are not recommended for first-year students.
2. See advisor for approved list of courses.

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**Minors**

**English**

The student must complete a minimum of 18 hours in English courses (excluding 101 and 198), half of which must be 300-400-level and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses; Engl 302 is required.

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**Humanities Minor**

The Department of English administers the Humanities minor. For details, see the separate entry under "Humanities."

**Linguistics**

The student must complete 18 hours, half of which must be 300-400-level, in the following courses: For L 101 or Engl 256, Engl 255 or Phil 201, Engl 443 (phonology), Engl 443 (syntax), Anth 355 and one from Engl 458 (sociolinguistics), Engl 458 (psycholinguistics), Anth 350, Psych 492 or Phil 443. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

**Professional Writing**

The professional writing minor requires 18 hours, half of which must be 300-400-level and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses, and include Engl 301, 402 or 403 and 461. In addition, 12 hours from Engl 255, 256, 300, 355, 401, 402, 403, 405, 478 and 498 are required.

**Certificates**

**Professional Writing Certificate**

To earn the Professional Writing Certificate, students must complete the following five courses with a 3.0 GPA or better: Anth 350, Engl 301, 355, 402, and 498. Engl 498 must be taken only after the other four courses have been completed. The certificate can be earned through the Distance Degree Program and/or on-campus offerings. The university undergraduate certificate fee will apply.

**Teaching English as a Foreign Language Certificate**

To earn the Teaching English as a Foreign Language Certificate, students must complete 18 hours including the following courses: Engl 443 (syntax); Engl 443 (phonology); Engl 458 (sociolinguistics) or For L 441; Engl 458 (psycholinguistics); Engl 495 or For L 440; and Engl 498 (3 hours). Engl 255 (English grammar is highly recommended).

**Description of Courses**

**English Courses**

**Engl**

**100 Basic Writing** 3 Prereq writing placement exam. Designed to introduce students to writing and reading in the university. S, F grading.

**101 [W] Introductory Writing** 3 Prereq writing placement exam or Engl 100. Designed to develop students' academic writing, critical thinking, rhetorical strategies, reading and library skills. Credit not granted for more than one: Engl 101, 105, and 198.
102 Writing Tutorial V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 5 hours. Prereq writing placement exam. Student-centered group tutorial focusing on writing improvement usually connected to the Engl 101 or 105 course. S, F grading.

103 [W] Rhetorics of Change 3 Academic writing, communication, critical thinking, rhetorical strategies and informational literacy skills applied to critical inquiry.

104 Intermediate Grammar and Basic Skills ESL 3 Prereq writing placement exam. Designed to introduce non-native speakers of English to writing and reading in the university.


108 [H] Introduction to Literature 3 Reading short stories, novels, plays, and poetry by diverse voices; role of conventions, culture, history in interpretation of literature. Credit not granted for both Engl 108 and 199.

110 [H] Reading Now 3 Contemporary writing including fiction, poetry, creative nonfiction and graphic novels.

150 Introduction of Film as Narrative 3 (2-3) Introduction to analysis of techniques and elements of narrative film and to critical vocabulary for its study as art form.

198 [W] English Composition Honors 3 Open only to students in the Honors College. Credit not granted for more than one: Engl 101, 105, and 198.

199 [H] English Composition and Literature Honors 3 Open only to students in the Honors College. Credit not granted for both Engl 101 and 199.

200 [W] Expository Writing 1 or 2 Prereq sophomore standing. For transfer students who need to make up writing credits.

201 [W] Writing and Research 3 Prereq Engl 101 or 105. Designed to develop students' research skills for writing across the disciplines.

202 Grammar in Context 1 May be repeated for credit; cumulative maximum 2 hours. Prereq concurrent writing course. Tutorial to assist students in mastering conventions of Standard Edited American English. S, F grading.

205 [H] Introduction to Shakespeare 3 Shakespeare plays with emphasis on stage productions and film adaptations in various cultural contexts.

209 [H] Readings in English Literature 3 Selected works by diverse voices from different eras of English literature; importance of conventions, cultural contexts, for interpretation and understanding.

210 [H] Readings in American Literature 3 Selected works by diverse voices from different eras of American literature; importance of conventions, cultural contexts, for interpretation and understanding.

216 S,D American Cultures 3 Same as Am St 216.

220 [H,D] Introduction to Multicultural Literature 3 Same as CES 220.

251 Introduction to Creative Writing: Exploring the Genres 3 Beginning writer's workshop covering short fiction, creative nonfiction, and poetry with discussion of the elements of each genre; poetic forms.

255 English Grammar 3 Introduction to the terms, concepts, and analytical methods of traditional English grammar.

256 Introduction to Syntax and Semantics 3 Technical introduction to the structure of words and sentences in natural languages and to the study of linguistic meaning.

298 [W] Writing and Research Honors 3 Prereq Honors College Writing Diagnostic. Critical thinking, research, and advanced writing for Honors College students.

300 Computers in English 1 (0-3) May be repeated for credit; cumulative maximum 6 hours. Use of computers in the writing process and in the analysis of literature. S, F grading.

301 [W] Writing and Rhetorical Conventions 3 Prereq Engl 101 or 105. Designed to provide students with advanced practice in and study of style, argument, and other discourse conventions.

302 [W,M] Introduction to English Studies 3 Prereq Engl 101. Interpretation of texts in several fields of English studies including rhetoric, literary study, creative writing and professional writing.

303 Revision Workshop - ESL 3 Prereq GER written communication proficiency course and completion of University Writing Portfolio. Appreciation of writing processes and revision for speakers of English as a second or foreign language, including self-assessment, developing rhetorical approaches, diagnosing and solving consistent problems, editing, and proofreading strategies.

304 Revision Workshop 3 Prereq GER written communication proficiency course and completion of University Writing Portfolio. Appreciation of writing processes and revision, including self-assessment, developing rhetorical approaches; diagnosing and solving consistent problems, editing, and proofreading strategies.

305 [H] Shakespeare 3 Shakespearean drama to 1600.

306 [H] Shakespeare 3 Shakespearean drama after 1600.

307 [M] Historicized Analysis of Literature 3 Prereq Engl 302 or c/f. Introduction to analyzing literary texts in relation to literary and cultural history.

308 [H,M] Introduction to Literary Criticism 3 Introduction to the systematic study of critical and theoretical approaches to literature; emphasis on problems of interpretation.

309 [H] Women Writers 3 Women's artistic and intellectual contributions to prose, fiction, drama, and poetry.

311 [G] Asian/Pacific American Literature 3 Same as CES 313.

314 [M] Topics in Asian/Pacific American Literature 3 May be repeated for credit; cumulative maximum 6 hours. Same as CES 314.


316 [G] South Asian Film 3 (2-3) Exploration of films by directors in South Asia and in the South Asian diaspora.

317 [H,D] Gay and Lesbian Literature 3 Gay and lesbian literature with focus on the history of homosexual literature and exploration of current authors.

321 [G] African American Literature 3 Same as CES 331.

322 [M] Topics in African American Literature 3 May be repeated for credit; cumulative maximum 6 hours. Trends and major writers.

323 Approaches to the Teaching of English 3 Literature and language arts in secondary schools.


325 Young Adult Literature 3 Issues in literature written for young adults and strategies for teaching the genre in secondary schools.

326 Applied Grammar for Teachers 3 Application of traditional English grammar for K-12 teachers, with focus on edited, American, African American, vernacular, and Spanish-influenced Englishes.

332 [M] Topics in Poetry 3 Forms, history, development of poetry; the epic, the lyric, verse satire, dramatic monologue, modernist verse. May be repeated for credit; cumulative maximum 6 hours.

333 [M] Topics in Fiction 3 May be repeated for credit; cumulative maximum 6 hours. Forms, history, development of narrative fiction: the tale, short story, Continental and experimental novel.

334 [M] Topics in Drama 3 May be repeated for credit; cumulative maximum 6 hours. Forms, history, development of drama: comedy, tragedy, Medieval religious drama, theatre of the absurd.

336 [H] Composition and Design 3 Prereq junior standing. Same as DTC 336.

337 Experimental Animation 3 (2-2) Digital and analog animation techniques; conceptual development of narrative structures.
338 [M] Topics: Major Trends and Figures 3 May be repeated for credit; cumulative maximum 6 hours. Literary trends or major writers.

339 Topics in Film as Literature 3 (2-3) May be repeated for credit; cumulative maximum 6 hours. Analytical study of film as major literary genre.

340 Science Fiction Film 3 (2-3) Major science fiction films and the literature which inspired them.

341 [G,M] Native American Literature 3 Same as CES 373.

342 Documentary Film Theory and Production 3 (2-2) Theory of documentary film in social contexts culminating in the creation of actual documentary films by students.


346 Topics in Latina/o Literature 3 Prereq CES 101. Same as CES 354.

351 Creative Writing: Prose 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Engl 251 Workshop approach to writing prose.

352 Creative Writing: Poetry 3 Prereq Engl 251 or substitution approved by instructor. Workshop approach to poetry writing.

353 Creative Writing: Nonfiction 3 Prereq Engl 251 or substitution approved by instructor. Writing literary nonfiction: practice and theory.


356 Electronic Research and the Rhetoric of Information 3 Same as DTC 356.

357 Topics in Magazine Editing and Creative Writing 3 Magazine editing, audience, and cultural contexts; professional publishing techniques; other specialized topics in professional and creative writing.

358 Workshop Topics in Writing, Teaching, Literature 1 May be repeated for credit; cumulative maximum 6 hours. Prereq junior standing or approval of instructor. An intensive, time-limited workshop, offered by visiting writers, scholars, and other experts, in topics of special interest. S, F grading.

359 Topics in Creative Writing 3 May be repeated for credit; cumulative maximum 9 hours. Prereq Engl 251. Specialized topics in creative writing.

360 Principles of Rhetoric 3 Basic concepts and approaches to the art of persuasion.

361 [H] Everyday Rhetorics 3 Rhetorics as language and image of popular culture.

362 Rhetorics of Racism 3 The language of racism since WWII.

363 Rhetoric: Literacy, Power and Agency 3 Major discussions on literacy emphasizing the historical, social, linguistic and pedagogical.

364 [M] Legal Writing 3 Introduction to the American legal system and the style, arguments and accepted forms of professional writing in this discipline.

366 [H] The English Novel to 1900 3 Classic English novels in cultural perspective by such authors as Defoe, Fielding, Austen, the Brontes, Thackeray, Dickens, George Eliot, Hardy.

368 [H] The American Novel to 1900 3 Classic American novels in cultural perspective by such authors as Cooper, Hawthorne, Melville, Stowe, Twain, James, Jewett, Chopin, Crane, Dreiser.

370 The Making of “English”: Literature, Language and Culture Before 1600 3 Literature before 1600, highlighting the making of “English” through its interaction with other cultures/languages including Anglo-Saxon, French and Spanish.

371 17th and 18th Century Transnational Literature in English 3 Literacy and cultural texts in English from 1600 to 1800 including British and colonial American literatures within their transnational contexts.

372 19th Century Literature of the British Empire and the Americas 3 Literary and cultural texts in English from 1800 to 1900 focusing on global British literature and literatures of the Americas.

373 20th and 21st Century Global Literatures in English 3 Literary and cultural texts in English from 1900 to the present focusing on literatures representing the complex processes of globalization.

375 [H,M] Language, Texts and Technology 3 Prereq junior standing. Same as DTC 375.

400 History of Rhetoric 3 Survey of influential theories of rhetoric, ancient to modern.

402 [W,M] Technical and Professional Writing 3 Prereq Engl 101, junior standing. Research writing: defining, proposing, reporting progress; presenting a final product; other professional writing needs. Credit not granted for both Engl 402 and 403.

403 [W,M] Technical and Professional Writing ESL 3 Prereq Engl 101; pass University Writing Portfolio or concurrent enrollment in additional assigned coursework. For non-native speakers of English. Same as Engl 402. Special grammatical and rhetorical problems. Credit not granted for both Engl 402 and 403.

404 Advanced Professional Writing and Editing 3 Prereq Engl 402 or by interview. Professional writing and editing: textual alterations, design, and layout, including internship experience.

409 [T] Women Writers in the American West 3 Prereq completion of one Tier I and three Tier II courses. Diversity of writings by women in the trans-Missouri West from the 1890s to the present.

410 [T] Cultural Criticism and Theory 3 Prereq completion of one Tier I and three Tier II courses. Same as CES 405.

415 [T] Traditions of Comedy and Tragedy 3 Prereq completion of one Tier I and three Tier II courses. Study of tragedy and comedy in the Age of Shakespeare.

419 [T] The Twentieth Century Novel 3 Prereq completion of one Tier I and three Tier II courses. The novel in English in the literary and cultural context of the modern age.

443 Problems in English Linguistics: Syntax and Phonology 3 May be repeated for credit; cumulative maximum 6 hours. Credit not granted for both Engl 443 and 543. Technical introductions to generative analysis of sentences and to sound systems of human languages.

446 Form and Theory in Creative Writing: Prose and Poetry 3 Prereq two college-level creative writing courses. Formal elements of fiction, creative nonfiction, poetry for creative writing students; analysis of contemporary applications of traditional and experimental techniques.

451 [M] Advanced Creative Writing: Prose 3 May be repeated for credit; cumulative maximum 6 hours. Prereq one upper-division creative writing course. Advanced workshop in writing fiction or creative nonfiction prose.

452 [M] Advanced Creative Writing: Poetry 3 May be repeated for credit; cumulative maximum 6 hours. Prereq one upper-division creative writing course. Workshop approach to poetry writing for the advanced student.

454 History of the English Language 3 Prereq one-year foreign language. Language related to the origin, history, and literature of its speakers. Credit not granted for both Engl 454 and 554.

458 Topics in Sociolinguistics and Psycholinguistics 3 May be repeated for credit; cumulative maximum 6 hours. Relationship of language to social and psychological structures.

460 [M] The Scope of Rhetoric 3 Major themes in contemporary rhetoric.


470 [T] Literature and Culture of the American West 3 Prereq completion of one Tier I and three Tier II courses. Cultural exploration of American West in written texts; outsider and insider versions of reality and imagination of its diverse peoples.

471 [T] Cultural Politics Since World War II 3 Same as Am St 471.

472 [T] Ecological Issues and American Nature Writing 3 Prereq completion of one Tier I and three Tier II courses. Same as Am St 472.

475 [T,D] Digital Diversity 3 Prereq junior standing; completion of one Tier I and three Tier II courses. Same as Am St 475.
476 Digital Literacies 3 Prereq Eng/DT 375. Same as DTC 476.
477 Advanced Multimedia Authoring 3 (0-6) Prereq Eng 355. Same as DTC 477.
478 Usability and Interface Design 3 (0-6) Prereq Eng 355. Same as DTC 478.
481 American Literature 1855-1916 3 Prereq Eng 302. American writing in an era of expansion, social and literary ferment: Whitman, Dickinson, Froth, the literature of realism and naturalism.
482 Modern American Literature 3 Prereq Eng 302. Major literary movements and alternate voices in American poetry, fiction, and drama from World War I to the present.
483 Chaucer and Medieval Literature 3 Prereq Eng 302. Chaucer’s Canterbury Tales in the context of Medieval culture and literary tradition.
485 Milton and English Literature of the 17th Century 3 Prereq Eng 302. Non-dramatic literature from the Metaphysicals and Johnson through Milton, against background of scientific revolution, religious controversy, and civil war.
486 English Literature of the Restoration and 18th Century 3 Prereq Eng 302. Neoclassical literature from 1660 to the Romantic era: Dryden, Swift, Pope, Johnson, Gray, Goldsmith, Burns, and others.
487 English Romantic Literature 3 Prereq Eng 302. Major works by Blake, Wordsworth, Coleridge, Byron, Shelley, Keats, and others during Romantic literary revolt, especially 1798-1832.
488 Victorian Literature 3 Prereq Eng 302. Major works by Tennyson, Dickens, Browning, Swinburne, Wilde, and others in a dynamic age of change in Britain, 1832-1901.
489 Modern British Literature 3 Prereq Eng 302. Fiction, drama, poetry in age of conflict, artistic experimentation: Joyce, Woolf, Lawrence, Murdoch, Shaw, Pinter, Yeats, Eliot, Auden, and others.
492 [M] Advanced Topics in Literature, Criticism, and Theory 3 May be repeated for credit; cumulative maximum 6 hours. Not open to graduate students. Seminar with term paper project; focused studies in literature and critical theory.
493 [M] Advanced Topics in English Literature 3 May be repeated for credit; cumulative maximum 6 hours. Not open to graduate students. Seminar with term paper project; focused studies in English literature.
494 [M] Advanced Topics in American Literature 3 May be repeated for credit; cumulative maximum 6 hours. Not open to graduate students. Seminar with term paper project; focused studies in American literature.
495 [M] Advanced Topics in English for Teachers 3 May be repeated for credit; cumulative maximum 6 hours. Prereq senior in English/teaching option. Not open to graduate students. Seminar with term paper project; literature, composition theory, pedagogy.
496 Topics in American Studies 3 May be repeated for credit; cumulative maximum 9 hours. American Studies Summer Institute. Credit not granted for both Eng 496 and 506.
498 Internship V 1-15 May be repeated for credit; cumulative maximum 15 hours. Prereq junior in English. Cooperative learning experience in business, education, or industry in English-related jobs. S, F grading.
499 Special Problems V 1-4 May be repeated for credit. S, F grading.
501 Seminar in the Teaching of Writing: Methodology of Composition 3 Development of a workable definition of the methods of composing through a review of relevant research and problem-solving exercises.
506 Seminar in 16th Century English Literature 3 May be repeated for credit; cumulative maximum 6 hours.
507 Shakespeare V 1-3 May be repeated for credit; cumulative maximum 6 hours.
508 Seminar in Assessment of Writing 3 Problems involved in the diagnosis and assessment of student writing.
509 Seminar in Classical Rhetoric and its Influences 3 Study of Greek and Roman rhetorical theories and their influences.
510 Backgrounds of American Literature 3 Studies of American writing in cultural contexts.
511 Seminar in 17th and 18th Century American Literature 3
512 Introduction to Graduate Study 3
513 Theory and Method in American Studies 3 Same as Am St 513.
514 Seminar in 20th Century American Literature 3 May be repeated for credit; cumulative maximum 6 hours.
515 Contemporary Theories of Rhetoric 3 Contemporary critical theory and cultural studies and reconsiderations of suasive discursive practices.
516 Rhetorical Theory 3 Same as Com. 525.
521 Seminar in British Romantic Literature 3 May be repeated for credit; cumulative maximum 6 hours.
522 Seminar in Victorian Literature 3 May be repeated for credit; cumulative maximum 6 hours.
523 Seminar in English Literature of the 17th Century 3 May be repeated for credit; cumulative maximum 6 hours.
524 Seminar in English Literature of the Restoration and 18th Century 3 May be repeated for credit; cumulative maximum 6 hours.
529 Seminar in 19th Century American Literature 3 May be repeated for credit; cumulative maximum 6 hours.
531 Administering a Writing Program 3 Prereq graduate standing. Combining theory and practice in writing program supervision and management. Interns will work under direct faculty supervision.
532 Teaching Writing to Nontraditional Students 3 Prereq Eng 501. Theory and practice of the teaching of basic writers.
534 Techniques and Methods of Teaching of Technical and Professional Writing 3 Historical and theoretical bases for production of scientific discourse; training in its practical applications.
537 Seminar in English Literature 3 May be repeated for credit; cumulative maximum 12 hours. Major topics and figures.
543 Problems in English Linguistics: Syntax and Phonology 3 Graduate-level counterpart of Eng 443; additional requirements. Credit not granted for both Eng 443 and 543. Cooperative course taught jointly by WSU and UI (Eng 543).
547 Literary Criticism 3 Theories of literature from Plato and Aristotle to the present.
548 Seminar in Literary Theory 3 May be repeated for credit; cumulative maximum 6 hours. Problems in the theory and practice of literary criticism.
549 Seminar in 20th Century British Literature 3 May be repeated for credit; cumulative maximum 6 hours.
550 Seminar in Poetry or Non-fiction Prose 3 May be repeated for credit; cumulative maximum 6 hours. Historical and generic studies in poetry and non-fiction prose.
554 History of the English Language 3
555 Seminar in Middle English Literature 3 May be repeated for credit; cumulative maximum 6 hours.
567 Seminar in Prose Fiction 3 May be repeated for credit; cumulative maximum 6 hours. Historical and generic studies of prose fiction.
573 Seminar in American Literature 3 May be repeated for credit; cumulative maximum 12 hours. Major topics and figures.
580 Seminar in Medieval Literature 3 May be repeated for credit; cumulative maximum 6 hours. The literature of western Europe from 450 to 1500.
Insects and related arthropods are dominant components in all terrestrial and most freshwater ecosystems. There are more species of insects than all the other species of animals and plants combined. This almost unimaginable diversity provides the most fertile resource for scientific inquiry within a number of areas of biology. Entomology at Washington State University is active, robust, and dynamic. The curriculum provides the opportunity to investigate the basic and applied aspects of the science. Facilities and training are available for study in major areas of entomology including, but not limited to, apiculture, behavior, integrated biological control and sustainable pest management, ecology, forest entomology, insect/plant interactions, population genetics, physiology, taxonomy/systematics, biological diversity, and environmental toxicology. We believe that a detailed understanding of insect biology is a prerequisite to developing rational, effective, and sustainable management practices. Similarly, an understanding of the ecological ramifications of such management practices, particularly pesticide use, is a requirement.

The entomology curriculum provides the opportunity to study basic and applied aspects of entomology and prepares students employment in all aspects and levels of the science. Courses are designed for majors and nonmajors, providing needed training for students in agriculture, education, veterinary medicine, microbiology, public health, environmental sciences, and natural sciences. An interdisciplinary curriculum in integrated pest management (IPM) is available to students with interests that span entomology and pest management.

Facilities are available for graduate study in the major areas of entomology as delineated above. Departmental faculty, adjunct faculty, and affiliate faculty may all serve as student advisors. Faculty are housed both on campus and at research stations throughout the state; this ability to significantly interact with both on and off campus advisors and mentors offers students opportunities and perspectives not available in most programs. We maintain strong cooperative interactions with the USDA, ARS and students are encouraged to explore this avenue for advisors and funding opportunities. The department has a long and excellent record of student placement both nationally and internationally. Extensive insect collections, insectary, quarantine, computer, and molecular facilities support teaching, extension, and research. The department is committed to both basic and applied aspects of the science. We are heavily involved in developing an integrated biological control approach to pest management. This commitment is reflected in the broad involvement of the faculty in all aspects of entomology. The department offers courses of study leading to the degrees of Bachelor of Science in Biology with a major in entomology, Master of Science in Entomology, and Doctor of Philosophy in Entomology. Additional information can be obtained on the web at entomology.wsu.edu.

Preparation for Graduate Study

As preparation for work toward an advanced degree in entomology, a student should have completed an undergraduate major in one of the biological or physical sciences, forestry, agriculture, or a closely related field. Potential students with majors in other disciplines are considered on an individual basis. Background work should include courses in the biological and physical sciences, genetics, ecology, entomology, and the plant and animal sciences.

INTEGRATED PEST MANAGEMENT

The integrated pest management (IPM) option major is a multidisciplinary course of study offered through the Agriculture and Food Systems Degree Program. Students electing the IPM option will take courses in the Departments of Crop and Soil Sciences, Entomology, Horticulture and Landscape Architecture, and Plant Pathology. Students acquire a holistic perspective and ecological understanding of the philosophy, principles, and practices of pest management and are trained to become professional crop protection specialists.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

INTEGRATED PEST MANAGEMENT - ENTOMOLOGY OPTION (129 HOURS)

First Year

First Term | Hours
---|---
Biol 106 [B] (GER) | 4
Chem 101 [P] or 105 [P] (GER) | 4
Engl 101 [W] (GER) | 3
GenEd 110 [A] (GER) | 3
IPM 201 | 2
Second Term | Hours
Biol 107 [B] or 120 [B] (GER) | 4
Chem 102 [P] or 106 [P] (GER) | 4
GenEd 111 [A] (GER) | 3
Math 140 [N] or Stat 212 [N] (GER) | 4
Psych 105 [S] (GER) | 3

Second Year

First Term | Hours
---|---
Ag Ec 201 [S] (GER) | 3
CropS 201 or Hort 201 | 4
ES/RP 101 [B] (GER) | 4
ES/RP 174 | 3
H D 205 [C] (GER) | 3
Second Term | Hours
Art, & Humanities [H,G] or Social Sciences [S,K] (GER) | 3
Chem 345 | 4
ES/RP 150 [Q] or Zool 150 [Q] (GER) | 3
Intercultural Studies [L,K,G] (GER) | 3
SoilS 201 [B] (GER) | 3
Complete Writing Portfolio

Third Year

First Term | Hours
---|---
Arts & Humanities [H,G] (GER) | 3
Bot 320 | 4
CropS 305 | 3
PI P 429 | 3
Second Term | Hours
Biol 372 [M] | 4
Bot 332 | 4
Entom 343, 344 | 4
IPM 452 | 2
Elective/Option Course | 3
Third Term | Hours
Year 3, Summer Session: IPM 399 | 3

Fourth Year

First Term | Hours
---|---
Entom 439 | 4
One from: Entom 348, 441, 448 or 450 | 1-4
Tier III Course (GER) | 3
Elective/Option Courses | 6
Second Term | Hours
IPM 462 [M] | 3
Elective/Option Courses | 12-15

Department of Entomology

entomology.wsu.edu
FSHN 166
509-335-5422

INTEGRATED PEST MANAGEMENT - TREE FRUIT OPTION (146 HOURS)
The tree fruit integrated pest management option in the Entomology BS degree is an integrated, cooperative program between Wenatchee Valley College and the department of Entomology. This option is designed to prepare integrated pest management specialists for employment with the tree fruit industry in Washington or elsewhere in the Pacific Northwest. The first half of the program is taken at Wenatchee Valley College, where the emphasis is on fundamental agricultural science, tree fruit production, and orchard management (including pest management) through courses and orchard practicum experiences. Wenatchee valley College, located in the heart of Washington’s tree fruit industry, has teaching orchards and well equipped facilities. The second half of the program is taken at Washington State University where courses provide students with an advanced knowledge of plant science, entomology, and integrated pest management and fulfill remaining GERs necessary for the BS degree.

First Year

First Term

Hours

Arts & Humanities [H,G] (GER) 3
Bot 320 4
Chem 345 4
CropS 305 3
GenEd 110 [A] (GER) 3

Second Term

Hours

Biol 372 [M] 4
Bot 332 4
ES/RP 174 3
GenEd 111 [A] (GER) 3
IPM 452 2

Fourth Year

First Term

Hours

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Bot 325 3
CropS 360 [J] (GER) 3
Electives 6

Second Term

Hours

Entom 441 3
Hort 416 3
Hort 421 [M] 3
IPM 462 [M] 3
SoilS 441 3
Tier III Course [T] (GER) 3

INTEGRATED PEST MANAGEMENT - WEED SCIENCE OPTION (135 HOURS)

First Year

First Term

Hours

Biol 106 [B] (GER) 4
Chem 101 [P] or 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
IPM 201 2

Second Term

Hours

Biol 107 [B] or 120 [B] (GER) 4
Chem 102 [P] or 106 [P] (GER) 4
GenEd 111 [A] (GER) 3
Math 140 [N] or Stat 212 [N] (GER) 4
Psych 105 [S] (GER) 3

Second Year

First Term

Hours

Ag E 201 [S] (GER) 3
CropS 201 or Hort 201 4
ES/RP 101 [B] (GER) 4
ES/RP 174 3
H D 205 [C] (GER) 3

Second Term

Hours

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Chem 345 4
ES/RP 150 [Q] or Zool 150 [Q] (GER) 3
Intercultural Studies [I,G,K] (GER) 3
SoilS 201 [B] (GER) 3
Complete Writing Portfolio

Third Year

First Term

Hours

Arts & Humanities [H,G] (GER) 3
Bot 320 4
CropS 302 3
CropS 305 3
Pl P 429 3

Second Term

Hours

Biol 372 [M] 4
Bot 332 4
Entom 340; or 343, 344 3 or 4
IPM 452 2
Elective/OptCourse 3
Year 3, Summer Session: IPM 399 3

Fourth Year

First Term

Hours

CropS 303 3
CropS 445 3
Tier III Course (GER) 3
Elective/OptCourse 6

Second Term

Hours

IPM 462 [M] 3
SoilS 301 3
Elective/OptCourse 9-12

Minors

Entomology

Description of Courses

Entomology Courses

Entom

101 [B] Insects and People: A Perspective 3
The world’s most abundant animals and their extensive effects on people yesterday and today.

102 [B] Entomology in Human Health 3
Arthropods and their role in the transmission of human diseases; major arthropod vectored diseases.

150 [Q] Insects, Science, and World Cultures 3 (2-3) Impact of insects and agriculture on human affairs with emphasis on cultures and countries around the world; especially useful for non-science majors and K-8 pre-service teachers. Cooperative course taught by WSU, open to UI students (Ent 150).


344 [M] General Entomology Laboratory 2 (0-6) Rec Biol 106, 107 or permission of instructor. Identification and taxonomy of insects and related arthropods; insect collection and field work required.

348 Forest Insects 1 Same as NATRS 348.
349 Forest Pest Management 1 Same as NATRS 349.

361 Honey Bee Biology 1 Biology of the honey bee, including behavior, genetics, evolution, pollination, sociality, and beekeeping practices.

362 Fundamentals of Beekeeping 1 (0-2) Prereq Entom 361 or c/. Applied beekeeping practices including safety, equipment, colony installation, manipulation for pollination and honey production, honey bee diseases and pests.

375 Fundamentals of Orchard Ecology 3 (2-2) Prereq Entom 340 or two years field experience. Integration and application of knowledge of ecology, identification and life histories of orchard pests and their management.

376 Measuring Populations in Orchards 2 Prereq Entom 375. Common sampling methods and factors influencing populations dynamics of arthropods and management options. Field trips required.

401 [T] Biology and Society, Past and Present 3 Prereq Biol 106, completion of one Tier I and three Tier II courses; Rec Biol 150. Zool 150 Development of biological ideas and knowledge from antiquity to present with emphasis on major advances achieved through invertebrate models. Cooperative course taught by WSU, open to UI students (Ent 401).

439 [M] Taxonomic Entomology 2 (2-0) or 4 (2-6) Prereq Entom 340 or 343. Identification of insect orders and families. Insect collection required. Credit not granted for both Entom 439 and 539.

440 Taxonomy of Immature Insects 2 or 4 (2-6) Prereq Entom 343. Identification of eggs, larva, nymphs, and pupal stages of insects. Insect collection required. Credit not granted for both Entom 440 and 540.

441 Insect Ecology 3 (2-3) Prereq Entom 343 or general ecology course. Population and community dynamics, theory and application in natural and artificial systems. Field trips required. Credit not granted for both Entom 441 and 541. Cooperative course taught by UI (Ent 441), open to WSU students.


446 Host Plant Resistance 3 Prereq Entom 343. Principles and methods of screening and developing crop cultivars resistant to arthropods. Credit not granted for Entom 446 and 546. Cooperative course taught by UI (Ent 446), open to WSU students.

447 Introduction to Biological Control 3 Principles and methods of controlling insect pests and weeds by biological means. Credit not granted for both Entom 447 and 547. Cooperative course taught by UI (Ent 447), open to WSU students.

460 Insects for Teaching 2 Prereq general biology course. The use of insects in teaching scientific principles in the life sciences.

472 Aquatic Entomology 3 (2-3) Identification and biology of insects associated with aquatic and subaquatic environments. Credit not granted for both Entom 472 and 572. Cooperative course taught by UI (Ent 472), open to WSU students.

490 Special Topics in Entomology V 1-4 May be repeated for credit; cumulative maximum 10 hours. Credit not granted for both Entom 490 and 590.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

526 Population Analysis 1 Prereq NATRS/Entom/Biol 529, biometry. Same as NATRS 526.

529 Principles of Population Dynamics 1 Prereq general ecology. Same as NATRS 529.

539 Taxonomic Entomology 2 or 4 (2-6) Prereq Entom 340 or 343. Graduate-level counterpart of Entom 439; additional requirements. Credit not granted for both Entom 439 and 539.

540 Taxonomy of Immature Insects 2 or 4 (2-6) Prereq Entom 343. Graduate-level counterpart of Entom 440; additional requirements. Credit not granted for both Entom 440 and 540.

541 Insect Ecology 3 (2-3) Prereq Entom 343 or general ecology course. Graduate-level counterpart of Entom 441; additional requirements. Cooperative course taught by UI, open to WSU students (Ent 541).

542 Insect Behavior 3 Prereq one year biology or entomology. Principles of the behavior of insects. Cooperative course taught by WSU, open to UI students (NEED UI EQUIV).

543 Predator-Prey Dynamics 1 Prereq calculus, general ecology, statistics. Dynamic consequences of interactions between predators and their prey at the population, community and ecosystem level.

545 Insect-Plant Interactions: Mechanisms of Resistance to Arthropods 3 (2-3) Prereq Entom 343. Graduate-level counterpart of Entom 445; additional requirements. Credit not allowed for both Entom 445 and 545. Cooperative course taught by UI, open to WSU students (Ent 445).

546 Host Plant Resistance 3 Prereq one semester calculus, graduate standing. Graduate-level counterpart of Entom 446; additional requirements. Credit not granted for both Entom 446 and 546. Cooperative course taught by UI (Ent 546), open to WSU students.

547 Introduction to Biological Control 3 Graduate-level counterpart of Entom 447; additional requirements. Credit not granted for both Entom 447 and 547.

550 Insect Physiology 3 Prereq Biol 322, Chem 345; Biol 322, Entom 340, or 343. General principles of insect physiology; the mechanisms of vital processes in insects; organ, cellular, subcellular, chemical and physical levels. Cooperative course taught by WSU, open to UI students (Ent 550).

551 Biological Control of Weeds 1 Prereq general ecology. Principles, methodologies, and implementation of biological control of weeds in noncropland environments. Cooperative course taught by WSU, open to UI students (Ent 551).

555 Applied Design and Analysis of Ecological Field Experiments 2 Prereq Biol 372 or Stat 212; graduate standing. Overview of the application of experimental design and advance statistical analysis in ecological systems.

556 Insecticides: Toxicology and Mode of Action 1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Insecticides in terms of historical perspective, classification, synthesis, toxicity, mode of action, and metabolism.

557 Herbicides: Toxicology and Mode of Action 1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Herbicides in terms of historical perspective, classification, synthesis, toxicity, mode of action, and metabolism.

558 Pesticide Topics 1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Current issues concerning pesticides in terms of toxicity, mode of action, and metabolism.

565 Integrated Biological Control 3 Prereq Entom 340 or 343. Study of importance of incorporating biological control into integrated pest management problems in agricultural and urban ecosystems.

572 Aquatic Entomology 3 (2-3) Graduate-level counterpart of Entom 472; additional requirements. Credit not granted for both Entom 472 and 572. Cooperative course taught by UI (Ent 472), open to WSU students.

590 Special Topics in Entomology V 1-4 Graduate-level counterpart of Entom 490; additional requirements. Credit not granted for both Entom 490 and 590.

593 Seminar 1 May be repeated for credit. Prereq 20 hours biology. Reporting and discussing problems and research in entomology.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.
Integrated Pest Management Courses

IPM

201 Introduction to Pest Management in a Quality Environment  2 Pest management to maximize plant protection and safeguard the quality of the environment.

399 Pest Management Internship V 1-4 Supervised individual practicum with IPM-oriented businesses, organizations, and governmental agencies; professionally related field interaction. $, F grading.

452 Pesticides and the Environment 2 Rec 12 hours Biol. Immediate and prolonged effects of pesticides on human and other animals; legal and moral repercussions of pesticide use. Credit not granted for both IPM 452 and 552.


552 Pesticides and the Environment 2 Graduate-level counterpart of IPM 452; additional requirements. Credit not granted for both IPM 452 and 552.

562 Systems of Integrated Pest Management 3 (2-3) Graduate-level counterpart of IPM 462; additional requirements. Credit not granted for both IPM 462 and 562.

Program in Environmental Science and Regional Planning

www.sees.wsu.edu
Troy 305
509-335-8538

Please see the School of Earth and Environmental Sciences in this catalog for information about Environmental Science and Regional Planning.

Department of Fine Arts

www.finearts.wsu.edu
FA Center 5072
509-335-8686

Professor and Department Chair, C. Ivory; Professors, A. Christenson, R. Helm, C. Watts; Associate Professors, M. Forsyth, K. Haas; Assistant Professors, M. DePrano, D. Gast (Tri-Cities), H. Higgs (Vancouver), M. Kinkel, N. Miesel, I. Palmer.

The Fine Arts Department offers a diversity of experiences in the visual arts. The department offers courses of study leading to the degrees of Bachelor of Arts in Fine Arts, Bachelor of Fine Arts and Master of Fine Arts. The Bachelor of Arts and Bachelor of Fine Arts programs are designed to open doors into the world of visual expression and intellectual development. In particular, we encourage students to sample a variety of art disciplines and make an informed choice about their direction in art. The department includes some seven areas of emphasis within which to develop a program: drawing, painting, sculpture, printmaking, ceramics, photography, and digital media. These are supported by a strong art history component. Many career possibilities involving art exist in the world outside the university.

Students with a B.A in Fine Arts- General Option, should have a broad understanding of the visual arts with an understanding of arts-related concepts/ terms (including subject matter, form, and content) and basic studio production, as well as of art history, from a culturally diverse global perspective that includes contemporary trends and theory. They should be able to articulate in visual form a range of approaches, from a representational point of view through a more conceptual focus, make critical judgments about contemporary art and culture, and have an acceptable command of verbal and written expression in addition to visual expression.

Students with a B.A in Fine Arts – Art History Option are given broad exposure to the history of the visual arts. As an interdisciplinary field, art history is an intellectual arena in which students develop their perceptual skills and analytical tools to engage diverse art forms from multiple perspectives. Students begin with foundation survey courses, the History of World Art (FA 201 and FA 202), and then take upper-division courses to consider art from specific cultures and historical time periods. In these specialized courses, students gain familiarity with contextual issues concerning the production and consumption of art. They develop research and writing skills necessary to think critically about art and visual culture. Students are also introduced to basic aspects of studio production to enhance their visual skills and knowledge of material practices.

Students interested in preparing for secondary and primary art teaching may pursue a Bachelor of Arts or Bachelor of Fine Arts degree for their subject- matter preparation. The Department of Teaching and Learning does not offer a certification program in art education.

Certification Process

Prospective applicants for certification are responsible for acquainting themselves with all requirements and procedures. Details including specific course requirements and portfolio submission are available in the departmental office.

Transfer Credits

The Department of Fine Arts will accept up to 18 credit hours in art toward the major and 9 credit hours in art toward the minor.

Exchange Program

The Department of Fine Arts has a tuition-free exchange for four students with the School of Fine Arts at Nihon University, Tokyo, Japan. All art majors at WSU are eligible for this one-year study in Japan. Selection is made in the winter. Other opportunities for undergraduate study abroad in Europe, Australia, and the Far East are available from the Office of International Programs.

Graduate Study

The Fine Arts Department offers an interdisciplinary Master’s program for those wishing to pursue a career in studio art. Students may focus on, but are not limited to, ceramics, drawing, digital media, painting, photography, printmaking, and sculpture. Emphasis is placed on personal and conceptual artistic development in light of contemporary art practices.

The M.F.A. degree requires 52-60 credit hours and serves as the entry credential to college-level teaching and/or work as a practicing artist in the fine and applied arts. Graduates meet with faculty for one-on-one studio discussions. At the end of the first year students have an exhibition in the departmental gallery and the second year program culminates in a thesis exhibition held in the Museum of Art. A final oral examination is also required.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

BACHELOR OF ARTS IN FINE ARTS - ART HISTORY OPTION (120 HOURS)

Certification requirements:

1) F A 102 or 103;
2) 9 hours from 200 or 300-level art history courses;
3) 2.0 cumulative GPA in F A courses.

First Year

First Term  Hours
Arts & Humanities [H,G] (GER) 3
Biological Sciences [B] (GER) 4
Eng 101 [W] (GER) 3
FA 102 3
GenEd 110 [A] (GER) 3

Second Term  Hours
Communication Proficiency [C,W] (GER) 3
FA 103 3
GenEd 111 [A] (GER) 3
Math Proficiency [N] (GER) 3
Social Sciences [S,K] (GER) 3
## Second Year

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<td>Complete Writing Portfolio</td>
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<tr>
<td>FA Studio Elective</td>
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<td>Non-Western Art History--FA 301, FA 302 [M], or FA 404 [M]</td>
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<td>FA 302 [M], 308 [M], 310 [M], 403 [M], 404 [M], 405 [M]</td>
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<td>F A 499</td>
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<td>300-400-level Art History Elective</td>
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#### Footnotes

1. Select from any non-art history FA course.
2. See department for approved list of electives.

### BACHELOR OF ARTS IN FINE ARTS - GENERAL OPTION (120 HOURS)

For the degree Bachelor of Arts in Fine Arts a total of at least 48 hours of fine arts is required; 30 of these hours must be in 300-400-level courses.

Certification requirements:
1. 9 hours from F A 102, 103, 110, 111, 320, 350; 2. 3 hours from F A 201 or 202;
3. 2.0 cumulative GPA in F A courses.

## First Year

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<td>Engl 101 [W] (GER)</td>
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<td>F A 102</td>
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## BACHELOR OF FINE ARTS (BFA) (121 HOURS)

For the degree Bachelor of Fine Arts a total of at least 70 hours in fine arts are required; 46 of these must be in 300-400-level courses.

Certification requirements (students should prepare for BFA certification during fall semester of the junior year):
1. 9 hours from F A 102, 103, 110, 111, 320, 350; 2. 3 hours from F A 201 or 202;
3. 2.0 cumulative GPA in F A courses.; 4. 2.0 cumulative GPA in F A courses.
5. Slide portfolio and exhibit presentation of original art work.

## First Year

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<td>Engl 101 [W] (GER)</td>
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<tr>
<td>F A 102</td>
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<td>F A 110</td>
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## BACHELOR OF FINE ARTS (BFA) (121 HOURS)

For the degree Bachelor of Fine Arts a total of at least 70 hours in fine arts are required; 46 of these must be in 300-400-level courses.

Certification requirements (students should prepare for BFA certification during fall semester of the junior year):
1. 9 hours from F A 102, 103, 110, 111, 320, 350; 2. 3 hours from F A 201 or 202;
3. 2.0 additional hours in major emphasis;
4. 2.0 cumulative GPA in F A courses;
5. Slide portfolio and exhibit presentation of original art work.

## First Year

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<tr>
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<tr>
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## Second Term

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## Third Year

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## Fourth Year

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## Minors

### Art

A minor in art requires 18 hours including F A 102 or F A 103; F A 110; and one course from F A 201 or 202. The remaining 9 hours of electives must be in 300-400-level courses taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

### Art History

A minor in art history requires 18 hours including F A 201 and 202. The remaining 12 hours of electives must be in 300-400-level art history courses. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.
Description of Courses

Fine Arts Courses

FA

101 [H] Introduction to Art 3 For nonmajors. Appreciation of various visual art forms; emphasis on contemporary period.

102 Visual Conceptions I 3 (0-6) Introduction to visual and conceptual studio art practice through an interdisciplinary approach to two-dimensional space.

103 Visual Conceptions II 3 (0-6) Introduction to visual and conceptual studio art practice through an interdisciplinary approach to three-dimensional space.

110 Drawing 3 (0-6) Composition in pictorial space, visualization of ideas, drawing from life.

111 Figure Drawing 3 (0-6) Prereq F A 102, 110. Introduction to drawing the human figure.

201 [H] World Art History I 3 Historical survey of art and architecture from prehistory through 1450.

202 [H] World Art History II 3 Historical survey of art and architecture from 1450 to the present.

301 [G] Arts of Native North America 3 Diversity of visual forms, traditional and contemporary, within changing historical and cultural contexts.

302 [G,M] Arts of Asia 3 Art and architecture of India, China and Japan within their historical, religious and cultural contexts.

303 [H] Modern Art-19th Century 3 Prereq F A 201, 202. Modern art in the early modern period from around the globe.


307 [H,M] The Arts of Renaissance Europe 3 Prereq F A 201 and 202. The arts of southern and northern Europe from 1300 to 1550.

308 [H,M] Women Artists I 3 Middle Ages through the 18th century.


312 Advanced Drawing 3 (0-6) May be repeated for credit. Prereq F A 110. Advanced projects using drawing media and process.

313 Drawing from the Body 3 (0-6) May be repeated for credit. Prereq F A 111. Contemporary discourse surrounding the body; exploration through the practice of drawing and performatve actions.

320 Beginning Painting 3 (0-6) F A 102, 110. Introduction to problems in painting; development of composition and color.

321 Intermediate Painting 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq F A 320. Problems and ideas in painting.

331 Art, Science, and Technology 3 Prereq F A 201; certified Fine Arts and DTC majors and minors only or permission of instructor. Survey of art's relationship to science and technology from Renaissance to present day; emphasis on historical overview and cultural implications.

332 Introduction to Digital Media - Print and Web 3 (0-6) Prereq F A 102; F A 110. Introduction to principles and processes of digital media through print and web based projects; emphasis on theoretical investigations, conceptual development.

333 Introduction to Digital Media - Video and Sound 3 (0-6) Prereq F A 102 and 110. Principles and processes of digital media through video and sound-based projects; theoretical investigations and conceptual development.

337 Experimental Animation 3 (2-2) Same as Engl 337.

340 Ceramics 3 (0-6) Prereq F A 103 or 110. Hand building processes; glazing; firing.

341 Intermediate Ceramics 3 (0-6) Prereq F A 340. May be repeated for credit; cumulative maximum 9 hours.

350 Sculpture 3 (0-6) Prereq F A 103, 110. Composition of form in the three-dimensional space.

351 Intermediate Sculpture 3 (0-6) Prereq F A 350. May be repeated for credit; cumulative maximum 9 hours.

361 Special Topics—Drawing V 1-6 May be repeated for credit.

362 Special Topics—Painting V 1-6 May be repeated for credit.

363 Special Topics—Digital Media V 1-6 May be repeated for credit.

364 Special Topics—Ceramics V 1-6 May be repeated for credit.

365 Special Topics—Sculpture V 1-6 May be repeated for credit.

366 Special Topics—Printmaking V 1-6 May be repeated for credit.

367 Special Topics—Black and White Photography V 1-6 May be repeated for credit.

368 Special Topics—Color Photography V 1-6 May be repeated for credit.

369 Illustration and Rendering Techniques 3 (0-6) Prereq AMT 208; 220. Same as AMT 368.

370 Introduction to Printmaking 3 (0-6) May be repeated for credit; cumulative maximum 6 hours. Prereq F A 102. Introduction to the fundamentals of printmaking, incorporating drawing, painting and collage; processes may include lithography, etching, relief and monotype.

371 Screenprinting 3 (0-6) May be repeated for credit; cumulative maximum 6 hours. Prereq F A 102. Introduction to the basic techniques, processes and history of screenprinting; collage, repetition, multiples, hand-drawn, photo and digital processes.

380 History of Photography 3 Historical survey of photography from its invention to the present; conceptual, cultural, and technical implications of the medium.

381 Beginning Photography 3 (0-6) Prereq F A 102. Camera and black/white film used in conjunction with studio and darkroom techniques; composition and aesthetic concepts introduced.

382 Intermediate Photography 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq F A 381. Expansion of conceptual building in black/white darkroom and camera techniques; research and portfolio.

385 Digital Imaging 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq F A 332; 381. Principles and processes of digital imaging including color theory, software, cameras, scanning, color management and output options.

400 Special Topics V 1-6 May be repeated for credit; cumulative maximum 18 hours.

401 Special Topics—Art History V 1-6 May be repeated for credit.

403 [M] Modern Theories of Art 3 May be repeated for credit; cumulative maximum 6 hours. Selected topics in 19th and 20th century theories of art.

404 [M] Advanced Non-western Art History 3 May be repeated for credit; cumulative maximum 6 hours. Different topics related to the arts in Africa the Americas, Oceania, and Asia.

405 [M] Contemporary Art: Theory and Practice 3 Contemporary theories of art and how those theories are developed.

408 Art History Thesis V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq art history major. Thesis directed by student's department; original research paper regarding visual culture using art historical research skills. S, F grading.

423 Advanced Painting 3 (0-6) or 6 (0-12) May be repeated for credit. Prereq F A 321, major in fine arts. Continuation of F A 321. Advanced problems in painting. Six credits only with permission of instructor.

433 Print Based Media 3 (0-6) May be repeated for credit. Prereq F A 332. Principles and processes of visual communication in digital print; may include typography, image/text relationships, layout design and book arts.

434 Time Based Media 3 (0-6) May be repeated for credit; cumulative maximum 6 hours. Prereq F A 333. Principles and processes of video, installation, and sound based art; emphasis on conceptual development of experimental forms.
Food Science and Program in Human Nutrition

Food Science

www.sfs.wsu.edu

FSHN 102

509-335-2164

Human Nutrition - Professor and Interim Department Chair, K. Meter; Professors, K. Beerman, S. Batkus, J. Shultz, T. Shultz; Associate Professors, M. Edlefsen, S. McGuire; Instructors, L. Beha, D. Wood.

The School of Food Science and Program in Human Nutrition offers courses of study in three undergraduate major fields, food science, human nutrition (dietetics), and nutritional sciences. Students enrolled in areas of interest complete prescribed courses of study leading to the Bachelor of Science in Food Science and Human Nutrition. Further information about food science may be found at sfs.wsu.edu. Further information about nutrition may be found at www.pharmacy.wsu.edu/nutrition.

Food Science

Washington State University and the University of Idaho recently approved the merger of the food science faculty and programs from the WSU Department of Food Science and Human Nutrition with the food science faculty and programs from the UI Department of Food Science and Toxicology into a School of Food Science jointly administered by the Washington State University College of Agricultural, Human and Natural Resource Sciences and the University of Idaho College of Agriculture and Life Sciences. The School of Food Science will combine teaching, research and outreach programs at WSU and the UI. A School of Food Science will allow for coordinated planning, more efficient use of resources, and less duplication of effort. A more coordinated, efficient teaching program will reduce both the competition and duplication in student recruiting efforts, expand internship opportunities and job placement efforts, expand undergraduate and graduate student activities, and promote student retention and career guidance.

The formal creation of a bistate School of Food Science is unique in the nation and provides immediate national impact and recognition. The formation of the School of Food Science will promote food science teaching, research, and extension programs into the top tier of universities with food science programs in the United States based on faculty numbers, undergraduate and graduate student enrollment, degrees granted, research productivity, and extension programming. Food science graduates begin careers in food quality assurance, food safety microbiology, technical sales, production management, product extension or assurance, food safety microbiology, technical sales, research productivity, and extension programming. Food science graduates begin careers in food quality assurance, food safety microbiology, technical sales, production management, product extension or assurance, food safety microbiology, technical sales, research productivity, and extension programming.

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School of Food Science and Program in Human Nutrition

### Food Science

www.sfs.wsu.edu

FSHN 106

509-335-4763

Food Science - Professor and Interim Department Chair, B. Swanson; Professors, B. Chew, R. Dougherty, C. Edwards, A. McCandy, J. Powers, B. Rasco; Associate Professors, S. Clark, D. Kang; Assistant Professors, J. Harbertson, K. Killinger, K. Ringer, C. Ross; Instructors, F. Younce.

Food Science is the scientific discipline that supports the food and beverage manufacturing industry. Food Science is a multidisciplinary science that applies biology, chemistry, physics, engineering, nutrition, and other sciences to improve the safety and quality of food products; develop new food products; and design new, safer, and more energy-efficient products.
efficient food preservation methods. Food scientists strive to improve the microbial and chemical safety of foods, enhance the quality of foods through traditional and emerging technologies. Food scientists conduct research to improve food safety and quality, identify beneficial food ingredients and develop new food products, extend the shelf life of foods, and identify environmentally friendly food preservation technologies. Food scientists are employed around the world by large and small food processing companies, food ingredient suppliers, food quality assurance and testing labs, federal and state governmental agencies, and academia. The School of Food Science is well positioned to meet the emerging challenges, needs, and opportunities of the food industry.

Food Science students learn to convert food commodities into high quality, safe and nutritious food products. As part of the BS degree, students receive training and learn skills relative to the production, processing, preservation, safety, evaluation, and distribution of foods. The food processing industry is continually challenged to evaluate existing foods for quality, as well as the development of new foods to better meet consumer demands and the nutritional needs of the world. Students can gain practical processing and leadership skills in the state-of-the-art creamery where world-renowned Cougar Gold Cheese is made.

The undergraduate food science curriculum closely follows the recommendation of the national professional organization, the Institute of Food Technologists, and provides the student with a working knowledge of food science and food technology. In the first two years of college, students enroll in science courses and complete most General Education Requirements. Many of the General Education and Introductory chemistry, biology and physics courses can be completed with an Associate's Degree from many Community Colleges. In the junior and senior years, the curriculum emphasizes courses in food processing, food chemistry, food microbiology, and other specialized areas such as the processing and manufacture of cereal, dairy, fruit, vegetable, meat, and poultry products. Students with specific interest and career goals can gain additional education in selected programs by taking elective courses, participating in internships with food companies, and/or conducting a research project with a faculty member.

Our graduating seniors will (in addition to a strong undergraduate general education): 1) have well developed food science skills within the context of a strong science background; 2) be able to apply the scientific method to food science issues or problems; 3) to be able to organize and articulate (oral and written) information related to food science; 4) have practical skills specific to the food science field; and 5) have well developed leadership and teamwork skills.

**Human Nutrition (Dietetics)**

The General Dietetics Program (GDP) is the core curriculum for students seeking to become a registered dietitian (RD) and is the first step toward obtaining dietetics training to prepare for work related to food and nutrition. The GDP is a four-year program offered on the Pullman campus that provides the didactic preparation required by the American Dietetic Association (ADA). Completion of this degree results in a Bachelor of Science degree in Food Science and Human Nutrition. After graduation, students are eligible to apply to supervised practice programs in the US. Post-baccalaureate supervised practice experience through a dietetic internship or coordinated program is a necessary step to take the Registration Examination for Dietitians to become a registered dietitian and for ADA membership.

After graduating from the GDP, students may apply to dietetic internships, enter graduate school, or take a position in a variety of areas in food and nutrition. Those completing the GDP, an internship, and passing the National Registration Examination for Dietetics, are qualified for a variety of positions, including as members of a management team and/or healthcare team in hospitals, schools, colleges, and university food service; and in community settings, government and private agencies.

The Coordinated Program in Dietetics (CPD) is a dynamic program committed to educating qualified entry-level dietitians. The CPD provides academic instruction and 960 hours of supervised practice experience to meet the 900 hours required by the American Dietetics Association.

The two-semester CPD program provides “real world” experiences in various aspects of dietetics including community nutrition programs, clinical dietetics and food service management. The supervised practical experiences are located in the Tacoma/Olympia area.

In the CPD program, students complete the academic requirements for a Bachelor of Science degree, receive a Verification Statement, and are eligible to take the National Registration Examination to become a Registered Dietitian without the requirement of an additional internship. Students may also apply if they have completed a Bachelor's degree from an accredited/approved didactic program in dietetics and have received a Verification Statement from their DPD Director. Upon completion of the CPD they will also receive a Verification Statement and be eligible to take the National Registration Examination.

The General Dietetics Program and the Coordinated Program in Dietetics are accredited by the Commission on Accreditation of Dietetics Education (CADE) of the American Dietetic Association, 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995. Telephone: 312-899-0040 ext. 5400.

Students graduating from the General Dietetics Program will have the requisite knowledge, skills, and experience to successfully obtain a position in a supervised practice program or internship, complete the program, and pass the National Registration Examination to become a registered dietitian. Students graduating from the Coordinated Program in Dietetics will have the requisite knowledge, skills, and experience to successfully complete the program and pass the National Registration Examination to become a registered dietitian. We expect our graduating students will: 1) demonstrate the ability to communicate effectively in public and interpersonal situations using a variety of methods (written, oral, etc.); 2) have a strong foundation knowledge of physical and biological sciences; 3) demonstrate the ability to interpret research results and basic statistics; 4) have knowledge of diverse food-related issues, and demonstrate skills practical to the nutritional science field; 5) display personal and professional attitudes and values, ethical practice and leadership skills; and 6) demonstrate skills in collaborations, teamwork, problem-solving, and critical thinking.

**Nutritional Sciences**

The Nutritional Sciences option is designed for students wishing to prepare for careers in medicine, dentistry, and veterinary practice or to gain admittance to graduate school in a field related to nutrition. The curriculum of the Nutritional Sciences student draws upon a variety of nutrition-related disciplines, including human nutrition, biology, physiology and chemistry. With the exception of the General Education Requirements and a set of core courses, the course requirements for the Nutritional Sciences option are largely unspecified, allowing students to pursue topic areas of interest to them.

Students in this program of study are encouraged to complete a diverse set of advanced courses relating to the nutritional sciences affording a broad perspective on current knowledge of nutrient requirements and function and how this knowledge can be put to use. Faculty advisors work with individual students to develop a curriculum that fits the students’ particular interests. Students choosing the Nutritional Sciences option as a path toward professional school are highly encouraged to work closely with the Washington State University Pre-Health Advising Program.

Students graduating from the Nutritional Science option will (in addition to a strong undergraduate general education): 1) demonstrate the ability to communicate effectively in public and interpersonal situations using a variety of methods (written, oral, etc.); 2) have a strong foundation knowledge of physical and biological sciences; 3) demonstrate the ability to interpret research results and basic statistics; 4) have knowledge of diverse food-related issues, and demonstrate skills practical to the nutritional science field; 5) display personal and professional attitudes and values, ethical practice and leadership skills; and 6) demonstrate skills in collaborations, teamwork, problem-solving, and critical thinking.

**Other Opportunities**

Minors are available in food science, nutrition and foods, and food service management. Graduate programs are also available that lead to the degrees of Master of Science in Food Science, Master of Science in Human Nutrition (thesis and non-thesis option), Doctor of Philosophy (Food Science) and Doctor of Philosophy (Nutrition).

**Transfer Students**

Students planning to transfer to the school should coordinate their programs of study with advisors to select courses, in the proper sequence, which are applicable to the degree requirements.

**Preparation for Graduate Study**

Students who plan to work toward an advanced degree should seek advice from their advisors in the selection of courses. This will ensure the courses selected will strengthen their education in areas
needed for successfully completing an advanced degree program.

Students from related fields who wish to obtain an advanced degree in food science or nutrition are encouraged to apply as they may be well prepared for graduate studies. They would be required to take certain key courses required of undergraduates in addition to those needed for their graduate program.

Students who identify an interest in graduate work early in their studies are encouraged to contact the advisor no later than the end of the junior year so a course of study can be planned which schedules appropriate prerequisites to graduate courses and an introduction to research projects.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

FOOD SCIENCE AND HUMAN NUTRITION

FOOD SCIENCE OPTION (120 HOURS)

The food science option is for the student interested in the science of food processing, quality, safety and product development. Students gain practical experience in the application of chemistry and microbiology to the processing of foods.

First Year

First Term

Chem 105 [P] (GER) 4
Engl 101 [W] or 105 [W] (GER) 3
GenEd 110 [A] or 111 [A] (GER) 3
Math 140 [N] or 171 [N] (GER) 4

Second Term

Biol 107 [B] (GER) 4
Chem 106 [P] (GER) 4
ComSt 102 [C] or H D 205 [C] (GER) 3 or 4
GenEd 110 [A] or 111 [A] (GER) 3

Second Year

First Term

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Chem 345 4
FSHN 220 3
Phys 101 [P] (GER) 4
Social Sciences [S,K] (GER) 3

Second Term

A S 314 or FSHN 233 3
Arts & Humanities [H,G] (GER) 3
MBioS 303 4
MBioS 305 3
MBioS 306 3
FSHN Elective 3
Complete Writing Portfolio

Third Year

First Term

EcomS 351 or Mkgt 360 3
FSHN 303 3

Fourth Year

First Term

FSHN 408 4
FSHN 422 4
FSHN 460 3
FSHN 461 [M] 3
FSHN Elective 3
Intercultural Studies [I,G,K] (GER) 3

Second Term

FSHN 462 4
FSHN 489 3
Electives 5

Footnotes

1 Math 171 and 172 are required of those students who will be competing for scholarships offered by the Institute of Food Technologists.
2 Although Biol 106 is listed as a prerequisite to Biol 107, Biol 107 can be taken without Biol 106 if Chem 105 is taken prior to Biol 107 and if Biol 107 is taken concurrently with Chem 106.
3 FSHN electives may be selected using the emphasis area list available in the FSHN department. All courses must be selected in consultation with an academic advisor.

Additional Certification Requirements for the Coordinated Program in Dietetics (CPD):

1. A minimum cumulative GPA of 3.0.
2. Completion of all pre-requisite courses (courses in the GDP curriculum) with a passing grade (C or better) by the time they start the CPD. Students who have completed a Bachelor’s degree may apply to the CPD by submitting a Verification Statement verifying completion of CADE-accredited or approved program.
3. Submission of all application materials by the deadline date. Application materials will be evaluated on the basis of the breadth and depth of the experiences, as well as for clarity of expression. Application materials include:
   - a written statement describing reasons for entering the field of dietetics
   - relevant work and volunteer experience, involvement in extracurricular and professional activities.
   - plan to complete required courses before starting the CPD.
4. Adequate performance in personal/group interview.

The graduation requirement for certified CPD students is the same for admission - maintaining a cum GPA of 3.0 with a C or better in all courses.

First Year

First Term

Chem 101 [P] or 105 [P] (GER) 4
Engl 101 [W] (GER) 3
FSHN 120 3
FSHN 121 1
GenEd 110 [A] or 111 [A] (GER) 3
Math Proficiency [N] (GER) (if necessary) 3

Second Term

Chem 106 [P] (GER) 4
FSHN 201 3
GenEd 110 [A] or 111 [A] (GER) 3

Second Year

First Term

Biol 251 4
Communication Proficiency [C,W] (GER) 3
FSHN 233 3
MBioS 101 [B] (GER) 4
Elective 2

Second Term

Acctg 230 3
Arts & Humanities [H,G] (GER) 3
Chem 345 4
Intercultural Studies [I,G,K] (GER) 3
Stat 205 [N] or Stat 212 [N] (GER) 3
Complete Writing Portfolio

Third Year

First Term

Biol 315 4
FSHN 330 [M] 3
H D 204 or 300-400-level H D course 3
Elective 3

Second Term

FSHN 331 3
HBM 358 or MgtOp 301 3
MBioS 303 4
Tier III Course [T] (GER)* 3

**Fourth Year**

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<td>FSHN 431, 439, 440</td>
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**Fifth Year**

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<td>Social Sciences [S,K] (GER) 3</td>
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### Description of Courses

**Food Science and Human Nutrition Courses**

**FSHN**

110 Introduction to Food Science 3 Chemistry, microbiology, and processing of foods; concepts of food preservation, packaging and marketing; food additives and regulations. Field trip required. Cooperative course taught jointly by WSU and UI (FST 110).

113 Vines and Wines 3 The importance of viticulture including world wine regions and enology (winemaking); wine quality.

120 Food Preparation 3 Principles of food preparation, including physical and chemical changes, quantity, composition and use of foods.

121 Food Preparation Lab 1 (0-3) Prereq c// with FSHN 120. For nutrition majors and minors only. Hands-on lab preparation/experiments to understand the principles and methods of food preparation.

130 [B] Nutrition for Living 3 Information related to the interaction of nutrients in the body and factors that govern nutrient requirements.

201 Professional Dietetics 1 Structure, function and history of the American Dietetic Association, and educational requirements and roles of registered dietician.

220 Food Safety and Quality 3 Regulation, safety and quality of food products, including microbiological, chemical, and sensory properties of food. Cooperative course taught by UI (FST 220), open to WSU students.

233 Human Nutrition 3 Reciency or chemistry course; or Biol 251 or 315. Applying principles of chemistry, biology, and physiology to the study of nutrition emphasizing nutrient functions, nutrient requirements and impact of diet on health and disease.

303 [M] Food Processing 3 (2-3) Prereq MBioS 305; MBioS 306; Chem 345. Specialized techniques and concepts of food processing and marketing. Field trip required. Cooperative course taught by WSU, open to UI students (FST 303).

304 Cereal Products 2 Prereq organic chemistry. Technical principles relating to the production and commercial processing of legume and cereal foods. Field trip required. Cooperative course taught by UI (FST 304), open to WSU students.

305 Nutrition Related to Fitness and Sport 3 Prereq FSHN 130 or 233. Same as Ath T 305.
330 [M] Physiological Nutrition 3 Prereq Biol 251; Chem 345; FSHN 130 or 233. Functional chemistry of nutrients in physiological systems and nutrient interactions.

331 Nutrition in the Human Life Cycle 3 Prereq FSHN 130 or 233. How growth and development impacts nutrient requirements throughout the life cycle. Cooperative course taught jointly by WSU and UI (FCS 486).

350 Nutritional Counseling and Assessment 3 (2-3) Rec FSHN 331. Fundamental knowledge and skills in nutritional counseling, including theory and strategies of behavior change and principles of nutritional and dietary assessment.

380 Management in Food Service Systems I 4 (3-3) Prereq FSHN 120; FSHN 121; 331; Acctg 230; HBM 358 or Mgmt 301. Food service purchasing, safety and sanitation, kitchen layout and design, equipment selection, food production, delivery systems, and inventory.

401 Topics in Food Science and Human Nutrition V 1-3 May be repeated for credit; cumulative maximum 6 hours. Credit not granted for both FSHN 401 and 501. Selected topics in food science and human nutrition.

405 Eating Disorders 2 Prereq senior standing; certified nutrition major. Junior-level nutrition majors and others by permission. Examination of anorexia nervosa, bulimia nervosa, compulsive eating, obesity, and weight preoccupation; discussion of cultural and nutritional factors, family issues, and psychological consequences, as well as preventive and therapeutic interventions. Cooperative course taught by UI (FCS 405), open to WSU students.

406 Evaluation of Dairy Products I 1 Identifying defects in dairy products and relating these defects to their probable cause; remedies. Credit not granted for both FSHN 406 and 506. Cooperative course taught by WSU, open to UI students (FST 406).


408 Seminar in Food Science 1 Prereq junior or senior standing in Food Science or permission of instructor. Critical analysis of contemporary topics in food science. Organization and communication of scientific information. Cooperative course taught jointly by WSU and UI (FST 408); S, F grading.

410 Advanced Practice Skills in Dietetics 1 Prereq junior standing in food science and human nutrition. Analysis of dietetics supervised practice experience; development of application process; participation in community affairs; public policy and research in dietetics.

411 Global Nutrition 2 History of food and hunger and the global nature of our food systems. Cooperative course taught by UI (FCS 411), open to WSU students.

416 Food Microbiology 3 Prereq MBioS 305; MBioS 306. Purpose for enumeration, detection and identification of microorganisms in food products; physical, chemical and environmental factors influencing growth and survival of foodborne microorganisms; pathogenic and spoilage microorganisms in food and their control. Cooperative course taught by UI (FST and MMBB 416), open to WSU students.

417 Food Microbiology Laboratory 2 (0-6) Prereq c//. In FSHN 416. Lab for FSHN 416. Cooperative course taught by UI (FST and MMBB 417), open to WSU students.

420 Food Laws, Policies, and Product Development 4 (3-3) Prereq FSHN 120. Rec Chem 345. Food laws, policies, industry standards, and quality of food for consumer acceptance; use of chemical and physical principles in food preparation to develop and explore new food products.

422 Sensory Evaluation of Food and Wine 4 (3-3) Prereq Stat 212 and age 21 or older. Theory, principles and application of sensory evaluation techniques in appearance, aroma, flavor and texture of foods and wine. Credit not granted for both FSHN 422 and 522. Cooperative course taught by WSU, open to UI student (FST 422/522).


427 Nutritional Assessment 1 (0-3) Rec FSHN 233; senior standing. Basic skills and concepts for determining nutritional status of ambulatory adults using dietary intakes, dietary standards, anthropometric and biochemical measures.

429 Dairy Products 4 (3-3) Prereq MBioS 101 or 301; Chem 345; MBioS 303. Dairy chemistry, microbiology, sanitation, product development and processing from cow to consumer. Credit not granted for both FSHN 429 and 529. Cooperative course taught by WSU, open to UI students (FST 429).

430 Human Nutrition, Intermediary Metabolism 3 Prereq Biol 251, FSHN 350, MBioS 303. Biochemical roles of nutrients and processes of intermediary metabolism affecting people’s need for food; integration of biochemical pathways of major and minor nutrients; important nutritional diseases and controversies.

435 Medical Nutrition Therapy 3 Prereq FSHN 350, 430 or c//. Nutrition principles applied to pathological conditions in people.

436 Nutrition Education 3 Prereq FSHN 130 or 233; senior standing. Guidelines and skills necessary for developing, planning, implementing, and evaluating nutrition education programs and materials.

437 Medical Nutrition Therapy Laboratory 1 (0-3) Prereq in FSHN 435. Nutritional care planning; modified diets; nutritional assessment and dietary analysis in clinical care settings.

438 Readings in Foods and Nutrition 2 Prereq junior standing. Reports, discussions and reviews of recent scientific literature and developments in foods and food systems management. Credit not granted for both FSHN 438 and 538.

439 Current Topics in Nutrition 2 Prereq FSHN 430. Analysis of scientific, popular and legislative articles pertaining to topics of current interest in nutrition. Credit not granted for both FSHN 439 and 539.

440 Advanced Medical Nutrition Therapy 3 By interview only. Advanced nutrition principles applied to pathological conditions in humans and principles of participation in delivery of nutritional care.

444 [T] Applied Nutrition in Health Science 3 Rec biology, chemistry, sociology/psychology courses. Application of current nutrition topics to community and clinical settings, integrating social science principles for individuals and groups.

460 Food Chemistry 3 Prereq Chem 345. Rec MBioS 303. Fundamentals of food chemistry; composition of foods and the changes that occur during processing. Cooperative course taught by WSU, open to UI students (FST 460).

461 [M] Food Chemistry Laboratory 1 (0-3) Rec FSHN 460 or c//. Experiments related to the properties, reactions, and interactions of chemical components of foods. Cooperative course taught by WSU, open to UI students (FST 461).

462 Food Analysis 4 (2-6) Prereq MBioS 305; MBioS 306. Rec Chem 345. Introductory food analysis; methods common to many food commodities. Cooperative course taught by WSU, open to UI students (FST 462).

464 Food Toxicology 3 Prereq permission of instructor. General principles of toxicologic evaluation of chemicals which enter the food chain; toxicology of food additives, colors, preservatives, drugs, pesticides and natural toxins in foods and risk characterization. Credit not granted for both FSHN 464 and 564. Cooperative course taught by UI (FST 464), open to WSU students.

465 Wine Microbiology and Processing 3 Prereq MBioS 303; MBioS 305; MBioS 306. Technical principles related to the processing and fermentation of wines with an emphasis on microbiology. Credit not granted for both FSHN 465 and 565. Cooperative course taught by WSU, open to UI students (FST 465).

466 Wine Microbiology and Processing Laboratory 1 Prereq FSHN 465 or c//. Hands-on winemaking; application of chemical microbiological methods for wine analysis. Field trip required. Cooperative course taught by WSU, open to UI students (FST 466).
470 Advanced Food Technology 3 Prereq FSHN 303, 416, 433, 460 or c//. Physical principles of food preservation and recent advances in food technology. Credit not granted for both FSHN 470 and 570. Cooperative course taught by WSU, open to UI students (FST 470).

475 Current Topics in Food Systems Management 2 Prereq by interview only. Analysis of scientific popular and legislative articles pertaining to topics of current interest in food systems.

476 Advanced Food Systems Management 3 (2-3) Prereq by interview only. Advanced principles of food systems related to food service management, community nutrition resources and public health nutrition; includes clinical conferencing related to FSHN 477.

477 Supervised Practice in Dietetics I 10 (0-30) Prereq FSHN 475, 476 or c//; by interview only. Supervised practical experience for seniors in CPD program.

480 Management in Food Service Systems II 3 Prereq Acctg 230; FSHN 120; FSHN 380; HBM 358. Management theories, human resources, financial planning, marketing, and quality control

489 Food Product Development 3 Prereq FSHN 303, 416, 460; senior standing. Application of food chemistry, food processing/engineering and microbiology; knowledge to formulate a new food product. Cooperative course taught by UI (FST 489), open to WSU students.

495 Internship in Food Science and Human Nutrition 2 May be repeated for credit; cumulative maximum 4 hours. Prereq sophomore standing. Students work full time in industrial assignments with prior approval of advisor and industrial supervisor. S, F grading.

496 Internship in Winery 2 Prereq sophomore standing. Industrial assignments at a regional, national or international winery. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

500 Topics in Food Science V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq permission of instructor. Cooperative course taught jointly by WSU and UI (FST 500).

501 Topics in Food Science and Human Nutrition V 1-3 Graduate-level counterpart of FSHN 401; additional requirements. Credit not granted for both FSHN 401 and 501.

502 Topics in Food Science V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq permission of instructor. Cooperative course taught jointly by WSU and UI (FST 502).

503 Topics in Food Science V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq permission of instructor. Cooperative course taught jointly by WSU and UI (FST 503).

504 Advanced Human Nutrition 4 Prereq graduate standing. Scientific basis of human nutrient requirements, dietary allowances and assessment techniques.

505 Eating Disorders 2 Prereq graduate nutrition student or by permission. Graduate-level counterpart of FSHN 405; additional requirements. Credit not granted for both FSHN 405 and 505. Cooperative course taught by UI (FCS 504), open to WSU students.

506 Evaluation of Dairy Products I 1 Graduate-level counterpart of FSHN 406; additional requirements. Credit not granted for both FSHN 406 and 506. Cooperative course taught by WSU, open to UI students (FST 506).

507 Evaluation of Dairy Products II 1 (0-3) Graduate-level counterpart of FSHN 407; additional requirements. Credit not granted for both FSHN 407 and 507. Cooperative course taught by WSU, open to UI students (FST 507).

508 Seminar Written 2 May be repeated for credit. Planning, writing, reviewing, reporting and evaluating current food-related research.

509 Seminar Oral 1 May be repeated for credit. Development of skills and communication tools and techniques for oral presentations of current food science and human nutrition research.

510 Advanced Food Chemistry 3 Rec biochemistry, food chemistry. Chemical, physical, and toxicological properties of water, vitamins, pigments, synthetic colors, minerals, miscellaneous food additives, and natural toxicants. Cooperative course taught by WSU, open to UI students (FST 510).

511 Food Carbohydrates, and Lipids 3 Rec biochemistry, food chemistry. Occurrence, structure, chemical and physical properties; functions of carbohydrates and lipids in foods. Cooperative course taught by WSU, open to UI students (FST 512).

512 Food Proteins and Enzymes 2 Prereq biochemistry, food chemistry. Chemistry/biochemistry of proteins/enzymes applied to food research and industry; protein functionality/enzyme technology application to food industry. Cooperative course taught by WSU, open to UI students (FST 513).

513 Mineral and Vitamin Metabolism 4 Prereq A S 406 or 408; MBioS 303. Same as A S 513.

520 Research Methods in Human Nutrition 3 Prereq graduate standing. Rec FSHN 426 or 436; statistics course. The application of human theories and qualitative/quantitative methods of data collection to human nutrition research. Cooperative course taught by WSU, open to UI students (FCS 521).

522 Sensory Evaluation of Food and Wine 4 (3-3) Prereq Stat 212. Graduate-level counterpart of FSHN 422; additional requirements. Credit not granted for both FSHN 422 and 522. Cooperative course taught by WSU, open to UI students (FST 522).

526 Advanced Community Nutrition 3 Prereq 300-400-level nutrition course. Components of community nutrition programs-needs assessment, planning, intervention, evaluation; application of concepts to case studies. Cooperative course taught by WSU, open to UI students (FCS 526).

529 Dairy Products 4 (3-3) Prereq MBioS 101 or 301; Chem 345; MBioS 303. Graduate-level counterpart of FSHN 429; additional requirements. Credit not granted for both FSHN 429 and 529. Cooperative course taught by WSU, open to UI students (FST 529).

530 Prenatal, Infant and Child Nutrition 2 Prereq graduate standing. Nutrition of the mother and fetus during pregnancy and of the child from infancy through childhood.

531 Advanced Lifecycle Nutrition 2 Prereq lifecycle nutrition course or c// FSHN 331. Critically evaluate published literature concerning nutritional considerations during periods of growth, development, pregnancy, lactation, and aging.

533 Pathophysiology of Human Nutrition 3 Prereq FSHN 435. Protein, fat, carbohydrate and other nutrient pathophysiology in the development and treatment of major human diseases.

538 Readings in Foods and Nutrition 2 Graduate-level counterpart of FSHN 438; additional requirements. Credit not granted for both FSHN 438 and 538.

540 Advanced Clinical Practice 3 (0-9) Prereq FSHN 435, 437; permission of instructor. Application of diet therapy principles to development of nutrition interventions and care plans in a clinical practice setting.

561 Sports Nutrition 3 Prereq by interview only. Macronutrient and selected micronutrient utilization during exercise and restoration after feeding, dietary surveys of athletes, dietary ergogenic aids and discussion of the origins of dietary recommendations for athletes. Cooperative course taught by UI (FCS 561), open to WSU students.

564 Food Toxicology 3 Prereq permission of instructor. Graduate-level counterpart of FSHN 464; additional requirements. Credit not granted for both FSHN 464 and 564. Cooperative course taught by UI (FST 564), open to WSU students.

565 Wine Microbiology and Processing 3 Prereq MBioS 303. Graduate-level counterpart of FSHN 465; additional requirements. Credit not granted for both FSHN 465 and 565. Cooperative course taught by WSU, open to UI students (FST 565).
Department of Foreign Languages and Cultures

www.forlang.wsu.edu
Thompson 110 509-335-4135

Professor and Department Chair, E. Gonzalez; Professor, Z. Dong, J. Grenier-Winthler, B. Ingemanson; Associate Professors, S. Davis, R. Halverson, C. Lupke, F. Manzo-Robledo, A. M. Rodriguez-Vivaldi; Assistant Professors, W. Brecher, W. Cao, M. Hubert, M. Luo, V. Navarro-Daniels; Instructors, B. Bond, K. Nimm, I. Serna, S. Polle, M. Previto; Lecturer, B. Henrioulle; Director, Language and Learning Resource Center, D. Winther; Academic Program Manager, L. Heustis.

Students graduating in any of the foreign languages or area studies degrees in the Department of Foreign Languages and Cultures would be expected: 1) to have a fairly advanced degree of competency in their foreign language of choice, depending on the intensity of the student's chosen level of concentration and their possible experience with study abroad; 2) to be better equipped, with expanded capabilities, for pursuing their careers in today's increasingly global society; 3) to have an intellectual development that prepares students to comprehend and function in the world of the present, but also prepares them for whatever the future may hold; 4) to have stimulation of the student's intellectual curiosity and critical thinking skills; 5) to have an appreciation of humanistic endeavors within the overall context of understanding international cultural diversity; and 6) to have a better understanding of some of the ethnic minorities in the U.S.

Students who wish to pursue an international career should: (1) select a major or minor in a foreign language, (2) select a second major in another professional field, (3) choose courses in the second professional field that focus on international issues, (4) choose GER courses that focus on international studies, and (5) spend a semester or more in a study abroad program, ideally a program that offers an internship in the student's professional field.

Recognizing the need for students to reinforce, in a practical way, knowledge gained in the classroom, the department sponsors a wide variety of supplementary activities. The Chinese House, a living group where only Chinese is spoken and where conversational activities are supplemented by a resident native speaker. McCroskey International House promotes cultural awareness and understanding built on personal contact and the exchange of ideas and opinions between people of diverse nations, races and religions. Visiting lecturers, language tables, foreign film showings, and other cultural events supplement the classroom experience.

The department also advises in degree areas of General Humanities-International Studies in the major concentration areas of Latin American Area Studies, Germanic Area Studies, French and Francophone Area Studies, and European Area Studies. (See Liberal Arts, General Studies-International Studies.)

Teacher Training Program

Students preparing to teach should consult the catalog listing of the Department of Teaching and Learning for certification requirements and for teaching majors and minors. Those who intend to major in foreign languages and education should begin the study of the major language in the first year and of the minor language, if any, not later than the beginning of the second year. Students are also required to take for L 440 and 441.

Preparation for Graduate Study

Students who contemplate graduate work in Spanish in the Department of Foreign Languages and Cultures should present an undergraduate degree similar to those described in the schedule of studies. Complete details on graduate programs are available from the graduate studies advisor and on the departmental website.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

CHINESE LANGUAGE AND CULTURE

(120 HOURS)

First Year

First Term

Hours

Chin 101 or higher (102, 203, 204) 1 4
Engl 101 [W] (GER) 3
For L 101 [G], 110 [H], 120 [G] or 130 [H] (GER) 3
GenEd 110 [A] (GER) 3
Social Sciences [S,K] (GER) 3 2

Second Term

Hours

Biological Sciences [B] (GER) 4
Chin 102 or higher (203, 204) 3
Chin 111, 121, or 131 3
GenEd 111 [A] (GER) 3

Second Year

First Term

Hours

Chin 203 or higher (204) 4
Math Proficiency [N] (GER) (105 rec) 3 or 4
Physical Sciences [P] (GER) 4
Elective 1 3

Second Term

Hours

Arts & Humanities [H,G] (GER) 3
Chin 204 or 307 3 or 4
Chin 311 [M] 3
Communication Proficiency [C,W] (GER) 3
Elective 1 3
Complete Writing Portfolio
### Third Year

**First Term**
- Arts & Humanities [H,G], Intercultural Studies [I,G,K] (GER) 3
- Chin 306, 307, or 308 3
- Chinese Area Studies Elective 3
- Intercultural Studies [I,G,K] (GER) 3
- Elective or For L 440 if teaching major 3

**Second Term**
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Chin 306, 307, or 308 3
- Chin 330 [M] 3
- Science Elective [B,P] (GER) 4
- 300-400-level Electives 3

**Fourth Year**

**First Term**
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Chin 306, 307, or 308 3
- Chinese Area Studies Elective 3
- For L 440 if teaching major 3

**Second Term**
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Chin 361, 363, or 364 3
- Chinese Area Studies Elective 3
- Tier III Course [T] (GER) 3
- 300-400-level Electives 3

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**Footnotes**

1. Study abroad in an immersion program in China or Taiwan is strongly recommended.
2. One [S] or [K] must also be an American Diversity [D] course.
3. Electives must be represented by competence in a second foreign language up to and including 204; an approved University minor or a teaching minor; or a second major in another field.
4. Students must take nine credits in China-related courses from other departments. For a list of approved courses, see the Department of Foreign Languages and Cultures.

### FRENCH, GERMAN, SPANISH REQUIREMENTS (120 HOURS)

A minimum of 34 hours beyond the 203 level (or the equivalent level in competence) in the major language is required for a Bachelor of Arts degree in Foreign Languages and Cultures. 101, 102, and 203 do not count toward the major. Students who place into 102 and receive a B or better qualify for an additional 4 departmental advanced placement credits; students placing into 203 or above and receiving a B or better qualify for 8 departmental advanced placement credits. A maximum of 8 departmental AP credits is possible. See department for details.

Majors must complete either a minor in a second foreign language, a concentration of at least 16 credits in a related field, or a second major. No course in which a C- or lower grade is earned will be counted toward the major or minor. Majors and prospective majors are strongly encouraged to spend at least one semester abroad, living in the target culture and enhancing their fluency. Many accredited study abroad programs are available; students should work with their advisors in the selection of a program. Of the 34 hours required for the major, a minimum of 15 must be taken in residence with 6 of these hours at the 400-level. A maximum of 12 credits per semester or 18 credits per year earned in a study abroad program may be applied toward the major.

Credits for 105, 205, 305 may not be applied toward the major or minor.

**First Year**

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<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tr>
<td>Fren, Ger, Span 203 (if necessary), or higher (204)</td>
<td>4</td>
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<tr>
<td>Fren, Ger, Span 205</td>
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<tr>
<td>Math 103 (if necessary)</td>
<td>3</td>
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<tr>
<td>Physical Science [P] (GER)</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
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**Second Year**

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<td>Biological Science (Lab course) [B] (GER)</td>
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<tr>
<td>Fren, Ger, Span 102 or higher (203 or 204)</td>
<td>4</td>
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<tr>
<td>Fren, Ger, Span 105</td>
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<td>Fren, Ger, Span 110, 111, 120, 121, 130, or 131</td>
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<td>GenEd 111 [A] (GER)</td>
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**Third Year**

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<tr>
<td>Fren, Ger, Span 307</td>
<td>3</td>
</tr>
<tr>
<td>Fren, Ger, Span 310, 311, 320, 321, 350, 351, or 361</td>
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</tr>
<tr>
<td>Intercultural Studies [G, I, K] (GER)</td>
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<tr>
<td>Elective or For L 440 if teaching major</td>
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**Fourth Year**

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<th>Hours</th>
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<tr>
<td>Fren, Ger, Span 407</td>
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**Minors**

### Chinese, French, German, Japanese, Russian, or Spanish

To fulfill requirements for a minor in Chinese, French, German, Japanese, Russian, or Spanish, a student must complete a minimum of 17 credits of course work in one language area. A foundation of the target language, 203 and 204 (8 credits), is required; in addition, 3 courses (9 credits) must be taken in courses other than 203-204 at the 300-400 level taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. All courses must be passed with a grade of C or better. Only courses thus designated in the Catalog may be repeated for credit toward the minor. Courses counting toward a minor in the language may not be counted toward a major in International Area Studies (i.e., Asian Studies, Latin America Area Studies, German Area Studies, French and Francophone Area Studies, or Russian Area Studies). 105, 205, and 305 may not count toward the minor. For courses taken in Study Abroad Programs or as other transfer credits, please check with your advisor.

### Film Studies

A minimum of 18 credits is required and must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. 9 credits must be chosen from Eng 150, For L 110, Phil 201, Soc 372, or Theat 150. An additional 9 credits are chosen from the following: People and Cultural Perspectives: CES 338, 379, Chin 111, For L 410, Fren 110, 111, 310, 311, Ger 110, 310, Rus 410, Span 110, 111, 310, 311, W St 340. Themes and Issues: CES 404/Com 471, Crn J/P 381, Eng 339, SHS 489. Production Skills: Bdclst 360, F A/Eng 337, F A 380, 434, Theat 163, 261, 363, 462. All core courses must be taken at WSU. After consultation with the film studies advisor, one elective course per semester, not to exceed two courses (one of which must be upper-division), may be transferred to the film studies minor from accredited study abroad and other university/college programs.
French Area and Culture Studies

A minimum of 16 credits is required. A foundation of the target language, French 203 (4 credits), is required; in addition, 4 courses (12 credits) of further knowledge must be taken other than 203 as: EITHER one lower level and two upper-level courses in FLC plus one approved course in another department; OR one lower-level and one upper-level course in FLC plus two approved courses in another department. See the department for a list of acceptable courses. For special requirements concerning French and Francophone options in the French Area Studies Minor, please see your advisor. A minimum of 9 credits with a letter grade must be taken in residency at WSU at the 300-400 level. All courses must be passed with a grade of C or better. Only courses thus designated in the Catalog may be repeated for credit toward the minor. Courses counting toward a minor in the language may not be counted toward a major in International Area Studies (i.e., Latin America Area Studies, German Area Studies, French and Francophone Area Studies, or Russian Area Studies). 105, 205, and 305 may not count toward the minor. For courses taken in Study Abroad Programs or as other transfer credits, please check with your advisor.

German Area and Culture Studies

A minimum of 16 credits is required. A foundation of the target language, German 203 (4 credits), is required; in addition, 4 courses (12 credits) of further knowledge must be taken other than 203 as: EITHER one lower level and two upper-level courses in FLC plus one approved course in another department; OR one lower-level and one upper-level course in FLC plus two approved courses in another department. See the department for a list of acceptable courses. A minimum of 9 credits with a letter grade must be taken in residency at WSU at the 300-400 level. All courses must be passed with a grade of C or better. Only courses thus designated in the Catalog may be repeated for credit toward the minor. Courses counting toward a minor in the language may not be counted toward a major in International Area Studies (i.e., Latin America Area Studies, German Area Studies, French and Francophone Area Studies, or Russian Area Studies). 105, 205, and 305 may not count toward the minor. For courses taken in Study Abroad Programs or as other transfer credits, please check with your advisor.

Latin American Area and Culture Studies

A minimum of 16 credits is required. A foundation of the target language, Spanish 203 (4 credits), is required; in addition, 4 courses (12 credits) of further knowledge must be taken other than 203 as: EITHER one lower level and two upper-level courses in FLC plus one approved course in another department; OR one lower-level and one upper-level course in FLC plus two approved courses in another department. See the department for a list of acceptable courses. A minimum of 9 credits with a letter grade must be taken in residency at WSU at the 300-400 level. All courses must be passed with a grade of C or better. Only courses thus designated in the Catalog may be repeated for credit toward the minor. Courses counting toward a minor in the language may not be counted toward a major in International Area Studies (i.e., Latin America Area Studies, German Area Studies, French and Francophone Area Studies, or Russian Area Studies). 105, 205, and 305 may not count toward the minor. For courses taken in Study Abroad Programs or as other transfer credits, please check with your advisor.

Description of Courses

Arabic Courses

Arbc

101 First Semester 4 (3-2) Fundamentals of speaking, listening, reading, and writing. Not open to native speakers except with permission. Cooperative course taught by UI (ARB BC 101), open to WSU students.

102 Second Semester 4 (3-2) Prereq Arbc 101 with a grade of C or better, or equivalent. Continued development of basic skills in speaking, listening and writing. Not open to native speakers except with permission. Cooperative course taught by UI (ARB BC 102), open to WSU students.

105 Elementary Conversation 1 May be repeated for credit; cumulative maximum 2 hours. Elementary-level conversation practice in small groups with a native/near-native speaker; not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Arbc 105); S, F grading.

Chinese Courses

Chin

101 First Semester 4 (3-2) Fundamentals of speaking, listening, reading, and writing. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Chin 101).

102 Second Semester 4 (3-2) Prereq Chin 101 with a grade of C or better, or equivalent. Continuation of Chin 101. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Chin 102).

105 Elementary Conversation 1 May be repeated for credit; cumulative maximum 2 hours. Elementary-level conversation practice in small groups with a native/near-native speaker; not open to native speakers except with permission. S, F grading.

111 [G] Asian Film 3 Asian film from a cultural perspective. Taught in English. Cooperative course jointly taught by WSU and UI (Chin 111).

120 Traditional Chinese Culture 3 Cultural development of China from early times through the golden age of Chinese civilization. Taught in English. Cooperative course taught by WSU, open to UI students (Chin 120).

121 [G] Modern Chinese Culture 3 An introduction to the culture of modern China, including Hong Kong and Taiwan. All readings in English. Cooperative course taught by WSU, open to UI students (Chin 121).

131 [G] Masterpieces of Asian Literature 3 Taught in English. Introduction to Asian literature. Cooperative course taught by WSU, open to UI students (Chin 320).

160 Chinese Calligraphy 1 (0-2) May be repeated for credit; cumulative maximum 4 hours. An introduction to the brush writing of Chinese characters. No prior knowledge of Chinese needed.

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

203 Third Semester 4 (3-2) Prereq Chin 102 with a grade of C or better, or equivalent. Further development of speaking, listening, reading, and writing skills. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Chin 201).

204 Fourth Semester 4 (3-2) Prereq Chin 203 with a grade of C or better, or equivalent. Continued practice in spoken and written language; selected texts in a cultural context. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Chin 201).
205 Intermediate Conversation I 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Chin 203 or 204 or equivalent or C// in Chin 203 or 204. Intermediate-level conversation practice in small groups with a native/near-native speaker. Not open to native speakers except with permission. S, F grading.

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

305 Intermediate Conversation V 1-2 May be repeated for credit; cumulative maximum 2 hours. Prereq one Chin 300-level course or C// in Chin 300-level course. Conversation practice in small groups. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Chin 305). S, F grading.

306 Intermediate Reading and Translation 3 Prereq Chin 204 with a grade of C or better, or equivalent. English-Chinese expressions, development of skills to increase reading speed and fluency. Cooperative course taught by WSU; open to UI students (Chin 306).

307 Intermediate Speaking and Listening 3 Prereq Chin 204 with a grade of C or better, or equivalent. Early advanced training in speaking, reading and writing on abstract topics in Chinese; continued development of listening comprehension skills. Taught in Chinese.

308 Intermediate Grammar and Writing 3 Prereq Chin 204 with a grade of C or better, or equivalent. Writing practice in the language and active review of grammar. Not open to native speakers except with permission. Cooperative course taught by WSU; open to UI students (Chin 308).

311 [M] Great Asian Directors 3 (2-3) Prereq China 111, 121 or 131. Focused study of two prominent Asian film directors. Taught in English. Cooperative course taught by WSU; open to UI students (Chin 311).

330 [M] The Art of War 3 (2-2) Prereq Chin 111, 121 or 131. The philosophy behind war, military strategy and its consequences and representation in literature and film from East Asia. Taught in English. Cooperative course taught by WSU; open to UI students (Chin 330).

361 Chinese for the Professions 3 Prereq Chin 204 with a grade of C or better. Communication in Chinese in the professional setting; telephone and meeting role play, letter writing, television and discussion of current events. Not open to native speakers except with permission. Cooperative course taught by WSU; open to UI students (Chin 361).

363 Introduction to Literary Chinese 3 Prereq Chin 102 or equivalent. Fundamentals of literary Chinese. Open to native speakers. Cooperative course taught by WSU, open to UI students (Chin 363).

364 Media Chinese Prereq Chin 204 with a grade of C or better. Study of Chinese using newspapers, television news, radio broadcasts, webcasts and other journalistic media. Taught in Chinese. Not open to native speakers except with permission. Cooperative course taught by WSU; open to UI students (Chin 364).

380 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

405 Advanced Conversation 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Chin 305; oral proficiency interview. Advanced-level conversation practice in small groups with a native speaker. Cooperative course taught by WSU, open to UI students (Chin 405). S, F grading.


480 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Classics Courses

Class

101 First Semester Latin 4 Latin fundamentals of speaking, listening and writing skills.

102 Second Semester Latin 4 Prereq Clas 101 with a grade of C or better, or equivalent. Continued development of Latin speaking, listening, reading and writing skills.

103 Latin and Greek for Sciences 2 Latin and Greek roots for students of science, medicine, horticulture, etc.

104 Practical Approaches to Latin 3 Basic understanding and word heritage of Latin used in a variety of applications including reading, grammar, speaking and writing.

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

341 Elementary Greek 4 Prereq Chin 102 or equivalent. Greek Language Lab 1 May be repeated for credit; cumulative maximum 2 hours. Basic skills. Cooperative course taught by UI (Grek 349), open to WSU students. S, F grading.

349 Greek Language Lab 1 May be repeated for credit; cumulative maximum 2 hours. Prereq permission. Advanced-level expressive skills. Cooperative course taught by UI (Grek 349), open to WSU students. S, F grading.

380 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

404 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours. Cooperative course taught by UI (Latn 404), open to WSU students.

441 Intermediate Greek I 4 Readings in classical Greek prose and poetry. Cooperative course taught by UI (Latn 441), open to WSU students.

461 Latin Literature of the Augustan Age 3 Cooperative course taught by UI (Latn 461), open to WSU students.

462 Latin Literature of the Augustan Age 3 Cooperative course taught by UI (Latn 462), open to WSU students.

463 Latin Literature of the Republic 3 Cooperative course taught by UI (Latn 463), open to WSU students.

480 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

Foreign Languages and Cultures Courses

For L

100 Studies in Foreign Languages I V 1-4 May be repeated for credit; cumulative maximum 8 credits. Languages, topics, or foreign language skills not covered by other 100-level courses.

101 [G] Introduction to the World of Languages 3 Taught in English. Explore the nature, history, evolution, acquisition, and use of language with examples from major foreign language groups.

102 [H] Humanities in the Ancient World 3 Same as Hum 101.

110 [H] Introduction to Foreign Film 3 Taught in English. An introduction to the study of international film; stories, cultures, and cinematic features.

120 [G] Introduction to Foreign Cultures 3 Taught in English. An introduction to both verbal and non-verbal intercultural communication.

130 [H] Introduction to Foreign Literature 3 Taught in English. An introduction to the study of international literature; stories, cultures, and literary devices.

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.
210 Foreign Film and Lecture Series I 1 (0-2)
An introduction to foreign films through universal themes and their varied cinematic portrayal.

Taught in English. Introduction to the themes and concepts involved in global studies.

221 Pre-Study/Internship Abroad Orientation 1 Taught in English. Orientation and practical information for students preparing to study or intern abroad. S, F grading.

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

300 Studies in Foreign Languages V 1-4 May be repeated for credit. Languages not currently a part of the curriculum may be offered on demand. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (FL 300).

302 [H,M] Humanities in the Middle Ages and Renaissance 3 Same as Hum 302.

303 [H,M] Reason, Romanticism, and Revolution 3 Same as Hum 303.

304 [H] Humanities in the Modern World 3
Same as Hum 304.

350 [S] Speech, Thought, and Culture 3 Same as Anth 350.

380 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

400 Special Topics 3 May be repeated for credit; cumulative maximum 6 hours. Prereq GenEd 110 or 111. Interdisciplinary study of foreign languages, literature, or culture.

410 [T] Issues in Foreign Film and Literature 3 Prereq one Tier I; three Tier II courses. Taught in English. Comparison of film adaptations to give students an understanding of how cultures respond to contemporary conditions.

440 Methods of Teaching Foreign Languages 3 Prereq 204 level of foreign language, or equivalent. Survey of current methodology with emphasis on practical application in the classroom. Credit not granted for both For L 440 and 450.

441 Research and Methods of Technology Enhanced Foreign Language Learning 3 Prereq 204 level of foreign language, or equivalent. Taught in English. The use of technology in the foreign language classroom; hands-on experience with equipment and multi-media materials. Credit not granted for both For L 441 and 541.

450 Descriptive Linguistics I 3 Same as Anth 450.

475 Teaching Foreign Language in the Elementary School 3 Prereq 204 level of foreign language, or equivalent. Same as T & L 473.

480 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

540 Research and Methods of Teaching Foreign Languages 3 Prereq graduate standing. Graduate level counterpart of For L 440; additional requirements. Credit not granted for both For L 440 and 540.

541 Research and Methods of Technology Enhanced Foreign Language Learning 3 Prereq graduate standing. Graduate level counterpart of For L 441; additional requirements. Credit not granted for both For L 441 and 541.

542 Research and Methods in Teaching Foreign Culture Courses 3 Prereq graduate standing. Survey of current theory on teaching foreign culture courses with emphasis on practical application and design of activities.

560 Seminar in Scholarly Methodology 2
Prereq graduate standing. Bibliography and formal aspects of scholarly writing/ general introduction to literary criticism.

600 Special Projects or Independent Study Variable credit S, F grading.

French Courses
Fren
101 First Semester 4 (3-2) Fundamentals of speaking, listening, reading, and writing. Not open to native speakers except with permission. Credit not granted for Fren 101/102, and 104.

102 Second Semester 4 (3-2) Prereq Fren 101 with a grade of C or better, or equivalent. Continued development of basic skills in speaking, listening, reading, and writing. Not open to native speakers except with permission. Credit not granted for Fren 101/102, and 104.


110 [H] French/Francophone Film 3 (2-2)
Taught in English. Introduction to French and Francophone films.

111 [G] Francophone Film in English 3 (2-2)
Taught in English. Introduction to films from the French-speaking world.

120 [H] French Culture 3 May be repeated for credit; cumulative maximum 6 hours. Taught in English. Cultural history of France from beginnings to present; comparison of French and American cultures.

112 [I] Francophone Culture 3 Taught in English. Study of relationship between France and its former colonies from a global perspective; complements Fren 120.


180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

203 Third Semester 4 (3-2) Prereq Fren 102 with a grade of C or better, or equivalent. Grammar review and further development of speaking, listening, reading, and writing skills. Not open to native speakers except with permission.

204 Fourth Semester 4 (3-2) Prereq Fren 203 with a grade of C or better, or equivalent. Continued practice in spoken and written language; selected texts in a cultural context. Not open to native speakers except with permission.

205 Intermediate Conversation I 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Fren 203 or 204 or equivalent, or c// in Fren 203 or 204. Intermediate-level conversation practice in small groups with a native/near-native speaker. Not open to native speakers except with permission.

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

305 Intermediate Conversation II V 1-2
Prereq one Fren 300-level course or c// in a Fren 300-level course. Conversation practice in small groups with native/near-native speakers. Not open to native speakers except with permission. May be repeated for credit; cumulative maximum 2 hours. S, F grading.

306 Intermediate Reading and Translation 3 Prereq Fren 204 with a grade of C or better, or equivalent. Vocabulary building, contrastive English-French expressions, development of skills to increase reading speed and fluency.

307 Intermediate Speaking and Listening 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Fren 204 with a grade of C or better, or equivalent. Systematic development of speaking and listening proficiency; emphasis on pronunciation and phonetics. Not open to native speakers except with permission.

308 [M] Intermediate Grammar and Writing 3 Prereq Fren 204 with a grade of C or better. Writing practice in the language and active review of grammar. Not open to native speakers except with permission.

310 (311) [H] French and Francophone Film 3 (2-3) Prereq either Fren 306, 307, or 308. Taught in French. View and discuss French and Francophone films of the 1930's to present.

German Courses

Ger

101 First Semester 4 (3-2) Fundamentals of speaking, listening, reading, and writing. Not open to native speakers except with permission.

102 Second Semester 4 (3-2) Prereq Ger 101 with a grade of C or better, or equivalent. Continued development of basic skills in speaking, listening, reading, and writing. Not open to native speakers except with permission.

105 Elementary Conversation 1 May be repeated for credit; cumulative maximum 2 hours. Elementary-level conversation practice in small groups with a native/near-native speaker; not open to native speakers except with permission.

110 [H] German Film 3 Taught in English. Introduction to German film.

120 [H] Germanic Culture 3 Taught in English. The cultural development of the Germanic peoples to 1750.

121 [S] Contemporary German Culture 3 Taught in English. Current social, political, economic, and cultural trends in Germany.

130 [H] Masterpieces in German Literature In Translation 3 Taught in English. Introduction to German literature.

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

203 Third Semester 4 (3-2) Prereq Ger 102 with a grade of C or better, or equivalent. Further development of speaking, listening, reading, and writing skills. Not open to native speakers except with permission.

204 Fourth Semester 4 (3-2) Prereq Ger 203 with a grade of C or better, or equivalent. Continued practice in spoken and written language; selected texts in a cultural context. Not open to native speakers except with permission.

205 Intermediate Conversation I 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Ger 203 or 204 or equivalent or C- in Ger 203 or 204. Intermediate-level conversation practice in small groups with a native/near-native speaker. Not open to native speakers except with permission.

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

305 Intermediate Conversation II V 1-2 May be repeated for credit; cumulative maximum 2 hours. Prereq one Ger 300-level course or C- in a Ger 300-level course. Conversation practice in small groups with native/near-native speakers. Not open to native speakers except with permission. S, F grading.

361 French for the Professions 3 Prereq Fren 204 with a grade of C or better, or equivalent. Systematic development of speaking and listening proficiency; emphasis on pronunciation and phonetics. Not open to native speakers except with permission.

380 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

405 Advanced Conversation 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Fren 305; oral proficiency interview. Advanced-level conversation practice in small groups with a native speaker. S, F grading.

407 Advanced Speaking and Listening 3 Prereq Fren 307, or equivalent. Systematic development of speaking and listening proficiency at the advanced level.

408 [M] Advanced Grammar and Writing 3 Prereq Fren 308, or equivalent. Development of advanced proficiency in writing.

410 [T] French Film in Translation 3 (2-2) Exciting view of French and Francophone cinema. All viewings, discussions, and writings in English.

430 [T] Topics in French/Francophone Literature in Translation 3 Prereq one Tier 1 course; three Tier II literature or humanities courses. Taught in English. In-depth reading and discussion of a select group of French literary works of a particular theme, genre, or author.

450 [M] Seminar in French Studies - Themes 3 May be repeated for credit; cumulative maximum 6 hours. Prereq two Fren 300-level courses excluding Fren 305. Seminar on important themes in French studies. Taught in French.

451 [M] Seminar in French Studies - Authors 3 May be repeated for credit; cumulative maximum 6 hours. Prereq two Fren 300-level courses excluding Fren 305. Seminar on important authors in French studies. Taught in French.

452 [M] Seminar in French Studies - Genres 3 May be repeated for credit; cumulative maximum 6 hours. Prereq two Fren 300-level courses excluding Fren 305. Seminar on important genres in French studies. Taught in French.

480 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.
Greek Courses

Greek

101 (Clas 341) Elementary Greek 4 Fundamentals of speaking, listening, reading and writing. Not open to native speakers except with permission. Cooperative course taught jointly by WSU and UI (Grek 341).

102 (Clas 342) Elementary Greek 4 Continued development of basic skills in reading, writing and pronunciation. Not open to native speakers except with permission. Cooperative course jointly taught by WSU and UI (Grek 342).

Italian Courses

Ital

101 First Semester 4 (3-2) Fundamentals of speaking, listening, reading, and writing. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Ital 101).

102 Second Semester 4 (3-2) Prereq Ital 101 with a grade of C or better, or equivalent. Continued development of basic skills in speaking, listening, reading and writing. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Ital 102).

105 Elementary Conversation 1 May be repeated for credit; cumulative maximum 2 hours. Elementary-level conversation practice in small groups with a native/near-native speaker. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Ital 105).

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

380 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

480 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Japanese Courses

Japn

101 First Semester 4 (3-2) Fundamentals of speaking, listening, reading, and writing. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Japn 101).

102 Second Semester 4 (3-2) Prereq Japn 101 with a grade of C or better, or equivalent. Continued development of basic skills in speaking, listening, reading and writing. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Japn 102).

105 Elementary Conversation 1 May be repeated for credit; cumulative maximum 2 hours. Elementary-level conversation practice in small groups with a native/near-native speaker; not open to native speakers except with permission. S, F grading.

111 [G] Asian Film 3 Same as Chin 111.


180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

203 Third Semester 4 (3-2) Prereq Japn 102 with a grade of C or better, or equivalent. Further development of speaking, listening, reading, and writing skills. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Japn 201).

204 Fourth Semester 4 (3-2) Prereq Japn 203 with a grade of C or better, or equivalent. Continued practice in spoken and written language; selected texts in a cultural context. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Japn 202).

205 Intermediate Conversation 1 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Japn 203 or 204 or equivalent or c/in Ital 203 or 204. Intermediate-level conversation practice in small groups with a native/near-native speaker; not open to native speakers except with permission. S, F grading.

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

305 Intermediate Conversation V 1-2 May be repeated for credit; cumulative maximum 8 hours. Prereq Japn 203, or equivalent. Conversation practice in small groups with native/near-native speakers. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Japn 305).

306 Intermediate Reading and Translation 3 Prereq Japn 204 with a grade of C or better. Vocabulary building, contrastive English-Japanese expressions, development of skill in reading speed and fluency. Not open to native speakers except with permission.

307 Intermediate Speaking and Listening 3 Prereq Japn 204 with a grade of C or better. Systematic development of speaking and listening proficiency; emphasis on pronunciation and phonetics. Not open to native speakers except with permission.

308 Intermediate Grammar and Writing 3 Prereq Japn 204 with a grade of C or better. Writing practice in the language and active review of grammar. Not open to native speakers except with permission.

480 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Nez Perce Courses

Nez P

101 First Semester 4 (3-2) Fundamentals of speaking, listening, reading, and writing. Cooperative course taught by UI (NezP 101); open to WSU students.

102 Second Semester 4 (3-2) Prereq NezP 101 with a grade of C or better. Continued development of basic skills in speaking, listening, reading, and writing. Cooperative course taught by UI (NezP 102); open to WSU students.

203 Third Semester 4 (3-2) Prereq NezP 102 with a grade of C or better. Further development of basic skills in speaking, listening, reading, and writing. Not open to native speakers except with permission. Cooperative course taught by UI (NezP 201).

204 Fourth Semester 4 (3-2) Prereq NezP 203 with a grade of C or better, or equivalent. Continued practice in spoken and written language; selected texts in a cultural context. Not open to native speakers except with permission. Cooperative course taught by UI (NezP 202).

205 Intermediate Conversation 1 1 May be repeated for credit; cumulative maximum 2 hours. Prereq NezP 203 or 204 or equivalent or c/in Ital 203 or 204. Intermediate-level conversation practice in small groups with a native/near-native speaker; not open to native speakers except with permission. S, F grading.

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

Russian Courses

Rus

101 First Semester 4 (3-2) Fundamentals of speaking, reading, and writing. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Russ 101).
102 Second Semester 4 (3-2) Prereq Rus 101 with a grade of C or better, or equivalent. Continued development of basic skills in speaking, reading, and writing. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Russ 102).

105 Elementary Conversation 1 May be repeated for credit; cumulative maximum 2 hours. Elementary-level conversation practice in small groups with a native/near-native speaker; not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Russ 105). S, F grading.

120 Russian Culture 3 Taught in English. Russian culture to 1917. Cooperative course taught by WSU, open to UI students (Russ 120).

121 [G] Contemporary Russian Culture 3 Taught in English. Current cultural and social trends in the former USSR. Cooperative course taught by WSU, open to UI students (Russ 121).

130 [H] Masterpieces of Russian Literature in Translation 3 Taught in English. The masterpieces of the great Russian and Soviet writers of the 19th and 20th centuries. Cooperative course taught by WSU, open to UI students (Russ 130).

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

203 Third Semester 4 (3-2) Prereq Rus 102 with a grade of C or better, or equivalent. Further development of speaking, listening, reading, and writing skills. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Russ 201).

204 Fourth Semester 4 (3-2) Prereq Rus 203 with a grade of C or better, or equivalent. Continued practice in spoken and written language; selected texts in a cultural context. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Russ 202).

205 Intermediate Conversation I 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Rus 203 or 204 or equivalent or c// in Rus 203 or 204. Intermediate-level conversation practice in small groups with a native/near-native speaker. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Russ 205). S, F grading.

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

305 Intermediate Conversation II V 1-2 May be repeated for credit; cumulative maximum 2 hours. Prereq one Rus 300-level course or c// in a Rus 200-level course. Conversation practice in small groups. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Russ 305). S, F grading.

306 Intermediate Reading and Translation 3 Prereq Rus 204 with a grade of C or better, or equivalent. Vocabulary building contrastive English-Russian expressions, development of skills to increase reading speed and fluency.

307 Intermediate Speaking and Listening 3 Prereq Rus 204 with a grade of C or better, or equivalent. Systematic development of speaking and listening proficiency. Cooperative course taught by WSU, open to UI students (Russ 205).

308 [M] Intermediate Grammar and Writing 3 Prereq Rus 204 with a grade of C or better, or equivalent. Writing practice in the language and active review of grammar. Not open to native speakers except with permission.

361 Russian for the Professions 3 Prereq Rus 204 with a grade of C or better, or equivalent. Applied language skills useful in a professional or business environment.

380 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

405 Advanced Conversation 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Rus 305; oral proficiency interview. Advanced-level conversation practice in small groups with a native speaker. Cooperative course taught by WSU, open to UI students (Russ 405). S, F grading.

410 [T] Russian Film 3 Prereq one Tier I; three Tier II courses. Russian daily life, historical events, and values in representative samples of Russian film. Taught in English. Cooperative course taught by WSU, open to UI students (Russ 410).

412 Government and Politics of the Former Soviet Union 3 Same as Pol S 412.

430 [T] St. Petersburg 3 Prereq one Tier I; three Tier II courses. Taught in English. The image and role of St. Petersburg in Russian classics in literature, art, music, and film. Cooperative course taught by WSU, open to UI students (Russ 430).

450 [M] Seminar in Russian Studies - Themes 3 Prereq two Rus 300-level courses excluding Rus 305. Seminar focusing on a particular theme. Taught in Russian.

462 History of Imperial Russia 3 Same as Hist 462.

463 [M] History of the Soviet Union 3 Same as Hist 463.

466 [T] History of the Cold War, 1944-present 3 Prereq one Tier I; three Tier II courses. Same as Hist 466.

480 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

499

Spanish Courses

Span

101 First Semester 4 (3-2) Fundamentals of speaking, listening, reading, and writing. Not open to native speakers except with permission.

102 Second Semester 4 (3-2) Prereq Span 101 with a grade of C or better, or equivalent. Continued development of basic skills in speaking, listening, reading, and writing. Not open to native speakers except with permission.

105 Elementary Conversation 1 May be repeated for credit; cumulative maximum 2 hours. Elementary-level conversation practice in small groups with a native/near-native speaker; not open to native speakers except with permission. S, F grading.

110 [H] Peninsular Spanish Film 3 Taught in English. Introduction to Spanish film.

111 [G] Latin American Film 3 Taught in English. History of Latin American cinema from a cultural perspective.

120 [H] Peninsular Spanish Culture 3 Taught in English. Introduction to Spanish culture.

121 [G] Latin American Culture 3 Taught in English. Contemporary social, political, and cultural issues in Latin America.

130 [H] Masterpieces of Peninsular Spanish and Latin American Literature In Translation 3 Taught in English. Introduction to Spanish and Latin American literature.

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

203 Third Semester 4 (3-2) Span 102 with a grade of C or better, or equivalent. Further development of speaking, listening, reading, and writing skills. Not open to native speakers except with permission.

204 Fourth Semester 4 (3-2) Prereq Span 203 with a grade of C or better, or equivalent. Continued practice in spoken and written language; selected texts in a cultural context. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Russ 202).

205 Intermediate Conversation I 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Span 203 or 204 or equivalent or c// in Span 203 or 204. Intermediate-level conversation practice in small groups with a native/near-native speaker. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Russ 205). S, F grading.

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

305 Intermediate Conversation II V 1-2 May be repeated for credit; cumulative maximum 2 hours. Prereq one Span 300-level course or c// in a Span 200-level course. Conversation practice in small groups. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (Russ 305). S, F grading.

306 Intermediate Reading and Translation 3 Prereq Span 204 with a grade of C or better, or equivalent. Vocabulary building contrastive English-Spanish expressions, development of skills to increase reading speed and fluency.

307 Intermediate Speaking and Listening 3 Prereq Span 204 with a grade of C or better, or equivalent. Systematic development of speaking and listening proficiency. Cooperative course taught by WSU, open to UI students (Span 205).

308 [M] Intermediate Grammar and Writing 3 Prereq Span 204 with a grade of C or better, or equivalent. Writing practice in the language and active review of grammar. Not open to native speakers except with permission.

361 Spanish for the Professions 3 Prereq Span 204 with a grade of C or better, or equivalent. Applied language skills useful in a professional or business environment.

380 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

380

APPLIED LANGUAGES
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Grade Option</th>
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<tbody>
<tr>
<td>306</td>
<td>Intermediate Reading and Translation</td>
<td>2 Prereq Span 204 with a grade of C or better, or equivalent. Vocabulary building, contrastive English-Spanish expressions, development of skills to increase reading speed and fluency.</td>
<td>S, F grading</td>
<td>V 1-6 May</td>
</tr>
<tr>
<td>307</td>
<td>Intermediate Speaking and Listening</td>
<td>3 Prereq Span 204 with a grade of C or better, or equivalent. Systematic development of speaking and listening proficiency; emphasis on pronunciation and phonetics. Not open to native speakers except with permission.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>308</td>
<td>Intermediate Grammar and Writing</td>
<td>3 Prereq Span 204 with a grade of C or better, or equivalent. Writing practice in the language and active review of grammar. Not open to native speakers except with permission.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>309</td>
<td>Spanish for Native Speakers</td>
<td>3-2 Prereq Span 203 with a grade of C or better, or equivalent. Readings on Spanish-speaking communities; information and corrective feedback for native speakers of Spanish, grammatical emphasis in writing and speaking.</td>
<td>Variable credit</td>
<td>3-6 May</td>
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<tr>
<td>310</td>
<td>Peninsular Spanish Film</td>
<td>3 Prereq either Span 306, 307, or 308. Study of important Spanish films. Taught in Spanish. Cooperative course taught by UI (Span 391), open to WSU students.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>311</td>
<td>Latin American Film</td>
<td>3 Prereq either Span 306, 307, or 308. Variable content seminar that focuses on the study of culture through films; taught in Spanish.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>320</td>
<td>Peninsular Spanish Culture</td>
<td>3 Prereq either Span 306, 307, or 308. Study of the culture of Spain. Taught in Spanish.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>346</td>
<td>Topics in Latina/o Literature</td>
<td>3 Prereq CES 101. Same as CES 354. The nature of Latin American culture and its impact on the Spanish-speaking world.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>350</td>
<td>Introduction to Peninsular Spanish Literature</td>
<td>3 Prereq either Span 306, 307, or 308. Introduction of literary analysis and the history of literature in Spain.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>351</td>
<td>Introduction to Latin American Literature</td>
<td>3 Prereq either Span 306, 307, or 308. Introduction to literary analysis and the history of literature in Latin America. Taught in Spanish.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>361</td>
<td>Spanish for the Professions</td>
<td>3 Prereq either Span 204, 309, or equivalent. Communication in Spanish for professional purposes; telephone and meeting role-plays, letter-writing, television, discussions of current events in the Spanish-speaking world.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>362</td>
<td>Topics in Professional Language</td>
<td>3 Prereq Span 204 or permission of instructor. Specialized language training; may include Spanish for health professionals, law enforcement personnel, veterinarians and other areas.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>380</td>
<td>Special Topics: Study Abroad</td>
<td>V 1-6 May be repeated for credit; cumulative maximum 6 credits. S, F grading.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>405</td>
<td>Advanced Conversation</td>
<td>1 May be repeated for credit; cumulative maximum 2 hours. Prereq Span 305; oral proficiency interview.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>407</td>
<td>Advanced Speaking and Listening</td>
<td>3 Prereq Span 307, or equivalent. Systematic development of speaking and listening proficiency at the advanced level.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>408</td>
<td>[M] Advanced Grammar and Writing</td>
<td>3 Prereq Span 308, or equivalent. Development of advanced proficiency in writing.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>420</td>
<td>[T] Cultural Topics</td>
<td>3 Prereq one Tier I; three Tier II courses. Variable content on Peninsular and/or Latin American cultural topics.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>430</td>
<td>[T] Masterpieces in Spanish Literature</td>
<td>3 Prereq one Tier I; three Tier II courses. Taught in English. Variable topic seminar on Spanish literature.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>450</td>
<td>[M] Seminar in Spanish Studies - Themes</td>
<td>3 May be repeated for credit; cumulative maximum 6 hours. Prereq two Span 300-level courses excluding Span 305. Seminar on important themes in Spanish studies. Taught in Spanish.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>451</td>
<td>[M] Seminar in Spanish Studies - Authors</td>
<td>3 May be repeated for credit; cumulative maximum 6 hours. Prereq two Span 300-level courses excluding Span 305. Seminar on important authors in Spanish studies. Taught in Spanish.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>452</td>
<td>[M] Seminar in Spanish Studies - Genres</td>
<td>3 May be repeated for credit; cumulative maximum 6 hours. Prereq two Span 300-level courses excluding Span 305. Seminar on important genres in Spanish studies. Taught in Spanish.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>453</td>
<td>[M] Seminar in Spanish Studies: Linguistics</td>
<td>3 Prereq Span 308, or equivalent.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>454</td>
<td>Seminar in Spanish Literature and/or Linguistics</td>
<td>3 May be repeated for credit; cumulative maximum 6 hours. Prereq endpoints on Spanish Literature. May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing or permission of instructor. Special interdisciplinary topics in Hispanic studies and/or linguistics.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>461</td>
<td>Advanced Instructional Practicum</td>
<td>2 Prereq graduate standing or permission of instructor. An introduction to foreign language instruction for beginning teaching assistants.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>457</td>
<td>Seminar in Twentieth-Century Spanish Literature</td>
<td>3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing or permission of instructor. Study of twelfth-century Spanish American literature. May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing or permission of instructor.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>458</td>
<td>Seminar in Spanish American Literature and/or Culture</td>
<td>V 1-3 May be repeated for credit. Prereq graduate standing or permission of instructor.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>509</td>
<td>Special Topics in Spanish Studies and/or Linguistics</td>
<td>V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing or permission of instructor. Special interdisciplinary topics in Hispanic studies and/or linguistics.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>560</td>
<td>Beginning Instructional Practicum</td>
<td>2 Prereq graduate standing or permission of instructor. Supervised practical experience in foreign language teaching.</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>570</td>
<td>Master’s Research, Thesis, and/or Examination</td>
<td>Variable credit</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
<tr>
<td>572</td>
<td>Master’s Special Problems, Directed Study, and/or Examination</td>
<td>Variable credit</td>
<td>S, F grading</td>
<td>V 1-3 May</td>
</tr>
</tbody>
</table>
General Education Courses

Description of Courses

General Education Courses

See the General Education Program section of this catalog for a complete description of the General Education Program. Vancouver students should refer to the Vancouver Campus information.

GenEd

104 Pathways to Academic Success Seminar 2 Introduction to college level research and writing, including analysis of source material, disciplinary/interdisciplinary discourse, and development of critical thinking.

105 Explore 2 Topic-based seminar for undecided second year and transfer students who work closely with research faculty while also exploring major and career areas of interest.

110 [A] World Civilizations I 3 Integrated study of social, political, and philosophical/religious systems in early civilizations, with an introduction to distinctive art forms.

111 [A] World Civilizations II 3 Integrated study of social, political, and philosophical/religious systems in modern civilizations, with an introduction to distinctive art forms of the major world civilizations.

200 [G] Studying World Civilizations Abroad 3 Prereq GenEd 110 or 111 or c//. Study-abroad experience for general education students to introduce them to the cultures they have studied in GenEd 110 and/or 111.

300 Accessing Information for Research 1 Effective research strategies in the disciplines, including emerging information resources, such as Internet.

302 Advanced Writing Tutorial V 1 (0-3) to 2 (0-6) May be repeated for credit; cumulative maximum 5 hours. Prereq concurrent enrollment in a Writing in the Major course or a course that assigns writing. Assigned tutorials in the WSU Writing Lab. S, F grading.

GE

101 [E] Introduction to University Learning Goals 1 Orientation to learning outcomes, e-portfolio, technology and skills seminars for first-year students.

105 [V] Land, River, Sea: People and the Watershed I 3 Prereq GenEd 110 or c//. People and environment of the Pacific Northwest and how they relate to the global ecology; historical rise of civilizations and our derived environmental values and ethics.

106 [V] Land, River, Sea: People and the Watershed II 3 Prereq GE 105 or c//. People and environment of the Pacific Northwest and how they relate to the global ecology; historical rise of civilizations and our derived environmental values and ethics; continuation of GE 105.

110 [A] World Civilizations I 3 Integrated study of social, political, and philosophical/religious systems in early civilizations, with an introduction to distinctive art forms.

111 [A] World Civilizations II 3 Integrated study of social, political, and philosophical/religious systems in modern civilizations, with an introduction to distinctive art forms of the major world civilizations.

301 [E] Connecting to University Learning Goals 1 Prereq 27 credits or junior standing. Orientation to learning outcomes, e-portfolio, technology and skills seminars for transfer students.

303 [E] Connecting to Research Across the Disciplines 1 Prereq GE 101 or 301; sophomore standing. Introduction to research on campus and in the community in various disciplines using e-portfolios.


Program in General Studies

General Studies is for students who have varied interests that may cut across the usual departmental boundaries and who wish to play a role in deciding on a suitable curriculum of study.

The General Studies programs are offered by the College of Liberal Arts and the College of Sciences. The degree offered through Liberal Arts are the Bachelor of Arts in Humanities, Bachelor of Arts in Social Sciences, and Bachelor of Liberal Arts. The degree offered through Sciences is the Bachelor of Science. These degrees are not identified with a specific subject-matter field on the diploma.

Students who wish to enroll in General Studies should contact the appropriate coordinator in Liberal Arts or Sciences.

For complete program information, see the Liberal Arts, General Studies Program, and the Sciences, General Studies Program, in this catalog.

Description of Courses

General Studies Courses

GenSt

400 General Studies Portfolio 1 Prereq senior standing. Evaluating one’s educational experience and presenting that evaluation in written form. S, F grading.

Department of Geology

www.sees.wsu.edu
Webster 1228
509-335-3009

Please see the School of Earth and Environmental Sciences in this catalog for information about Geology.

Global Studies

www.ip.wsu.edu/global
International Programs, Bryan 206
509-335-2541

Director and Associate Professor, A. Appleton.

Global studies looks at economic, political, social, cultural, and scientific practices in a trans-national and cross-cultural perspective. An undergraduate minor in global studies encourages a student in any major discipline to think in terms of the globalization that marks the contemporary world. The program of study designed to provide an exciting interdisciplinary global perspective on the arts, humanities, social sciences, and sciences. The minor is flexible and complements majors from across the University, affording students the opportunity to reach beyond their majors, or to take courses related to their majors outside of the context of the United States. The global studies minor gives students from all major disciplines a competitive edge in the global job market. Graduates in any field find that the unique combination of flexible coursework gives them the skills and background to work in their chosen fields in an international environment. It helps build the attributes of the successful global citizen, someone who is capable of understanding and mastering the complexity of diverse intercultural contexts.

Minors

Global Studies

The minor requires 18 credit hours and must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Students should select one track from the three listed in the course requirements, and one module from those listed within each track. Some courses may be substituted with the approval of the Director of Global Studies. In particular, many course equivalents may be taken through a study abroad program, and students are encouraged to discuss these with the Director of
Global Studies. Additional courses may be included within the minor as developed in the university curriculum.

**TRACK I - Language and Civilization:** Choose one from Com 321, Engl 222, F A 202, For L 101, 110, 120, 130, or 220. Choose 5 courses from one of the following modules:
- Regional and Comparative Literatures/Literature: Chin/Spa 111, Chin 130, Engl 333, 334, 335, For L 410, Fren/Ger/Spa 110, Fren/Ger/Rus/Spa 130, Fren/Rus 130.
- Art, Music and Folklore: Anth 301, 303, 304, 404, F A 404, 405, Mus 163, 265, 266, 361, 362, 363, Phil 430
- Language: 2 semesters of second foreign language required.

**TRACK II - Global Communities:** Choose one from Anth 203, CEs 212, For L 120, 220, Phil 101, Pol S 102, 103, or W St 332. Choose 5 courses from one of the following modules:
- Language: 2 years of high school or 2 semesters of university foreign language courses required. Additional foreign language study is strongly recommended.

**TRACK III - Technology and Global Society:** Choose one from Arch 202, CropS 360, ES/RP 101, F A 331, For L 120, 220, FSHN 170, Geol 210, NATRS 202. Choose 5 courses from one of the following modules:
- Global Resources and Human Survival: Biol 474, CEs 401, CropS 201, 360, Hist 495, NATRS 441, 312, SoilS 345.
- Language: None required but foreign language study is strongly recommended.

**Health Policy and Administration**

[www.hpa.spokane.wsu.edu](http://www.hpa.spokane.wsu.edu)

Academic Center Bldg., Suite 411
509-358-7980

Professor and Chair, W. C. Schmidt; Professors, J. S. Coyne, D. A. Scar, T. L. Skar; Associate Professors, M. M. Alhern, F. Akinci, J. Kennedy.

The Department of Health Policy and Administration (HPA) offers the Master of Health Policy and Administration degree at WSU Spokane. The HPA program’s mission is: (1) to prepare excellent working students in metropolitan Spokane, eastern Washington, and the Inland Northwest region, and excellent students nationally interested in healthy communities, for a variety of professional health services management positions; and (2) to contribute to community health services enhancement and community health policy development through education, applied research, and service. A core value of the HPA Program and its faculty is to prepare health services managers with the knowledge, skills, and values to exercise professional leadership and promote healthy communities.

The 50 credit hour curriculum includes: Introductory courses (Introduction to the Health Care System; Health Care Policy and Politics; Law and Ethics of Health Management; Government Regulation of Health Services; Health Care Cost Accounting; Biostatistics and Epidemiology for the Health Sciences; Marketing for Health Care Organizations); core courses (Health Care Economics, Health Care Finance; Health Management Decision Science; Health Care Management; Research and Evaluation Methods; Health Care Information Systems); electives; 3 credit internship; capstone course, Strategic Management and Marketing; and 3 credit graduate project.

Basic knowledge of microeconomics, financial accounting, and computer skills (word processing, spreadsheet) are prerequisites for the required courses. Computer assisted self-study programs and a listing of area classes satisfying the prerequisites are available from the program.

The graduate program in Health Policy and Administration is accredited by the CAHME (Commission on Accreditation of Healthcare Management Education). According to the Association of University Programs in Health Administration Directory of Programs, “[CAHME] is recognized by the Council for Higher Education Accreditation (CHEA) which oversees accreditation of the nation’s colleges and universities, and by the Department of Education, as the only accrediting agency in the field of health services administration. Accreditation by [CAHME] is the most important assurance that a graduate program meets the quality standards developed by the profession and the health services industry.”

The HPA Program is also admitted to the Western Interstate Commission for Higher Education (WICHE) Western Regional Graduate Program (WRGP). According to WICHE, WRGP “consists of very high quality masters and doctoral degree programs which tend not to be widely available throughout the West.” Admission of the HPA Program means that residents of Alaska, Arizona, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming are eligible to enroll at Washington resident rates of tuition. The WSU Health Policy and Administration Program is the only health administration program admitted to WRGP of the four CAHME-accredited programs in the WRGP region.

Students should apply for admission to WRGP through the regular HPA admissions process and identify themselves as “WICHE WRGP” applicants. Students should be a resident of one of the 14 participating states for one year before applying as a WRGP student. Part-time students are eligible to participate in WRGP if they have been admitted to a WRGP program.

Admission standards conform to the requirements of the WSU Graduate School. An undergraduate GPA of 3.0 or better is expected. In addition, GRE or GMAT scores are required for admission to the HPA Program, except for applicants holding a professional doctoral degree (e.g., MD, JD, DDS) or PhD from a US accredited school. Significant weight is given to GRE aptitude (verbal and quantitative combined) total scores of at least 1000, or a GMAT aptitude score of at least 500. However, indications of academic ability as expressed by undergraduate grade point average and professional experience are of greater importance than specific undergraduate background and GRE or GMAT scores.

For additional information, please call 509-358-7980 or visit www.hpa.spokane.wsu.edu.

**Description of Courses**

**Health Policy and Administration Courses**

**HPA**

**500 Introduction to the Health Care System**

3 Orientation to history and organization of the health care system.

**501 Health Care Policy and Politics**

3 History, methods, results and evaluation of health-care-related policy and politics.

**502 Law and Ethics of Health Management**

3 Private health law and ethics, including professional liability, relationship of physician and patient, malpractice reform, health institutions, and health access.

**503 Government Regulation of Health Services**

3 Prereq graduate standing. Public law regulation; health care quality, personhood and individual autonomy, life/death decisions, antitrust, health care financing and cost control.

**509 Health Care Economics**

3 Prereq microeconomics. The economics of allocating, financing and delivering health care services.

**510 Health Care Cost Accounting**

3 Prereq basic financial accounting; graduate standing. Basic cost-accounting concepts, principles, and applications in the health care setting.

**511 Health Care Finance**

3 Prereq HPA 512. Aspects of health care financial management fundamentals and managerial accounting for strategic financial management.

**512 Health Management Decision Science**

3 Prereq HPA 511. Application of decision science technology to risk-analysis problems in healthcare for both investor-owned and non-profit entities.

**515 Health Care Management**

3 Introduction to the knowledge, skills, and values associated with the practice of health management.

**516 Health Quality Management**

3 Overview of the total field of health quality, including strategic quality management programs, quality assurance, quality control, and design.
### Program in Health Sciences, WSU Spokane

**Associate Professor and Director of the Program in Health Sciences, S. E. Blank; Associate Professors, E. C. Johnson, M. Houghton (University of Idaho); Clinical Assistant Professors, J. Beary, S. Kynast-Gales, R.B. Lutz (adjunct), M. McMulkin (adjunct); Clinical Instructor, J. Knuth, J. Troupmann (adjunct).**

The Bachelor of Science in Exercise Physiology and Metabolism is a unique, interdisciplinary undergraduate degree in the health sciences that focuses on the biological and social/psychological inter-relationships between exercise and nutrition and the effect of this interaction on the health of individuals. The curriculum draws content from the biological and physical sciences, including courses in human anatomy, physiology, nutrition, organic and biochemistry, and microbiology; however, the primary focus of the upper division major is on the important interface between exercise physiology and nutrition.

The degree offers an integrative curricular approach with interdisciplinary examination of the multiple influences on individuals’ health based on benchmarks garnered from biological, nutritional, social/psychological, environmental, and clinical input. The program offers a unique perspective on how and why the human body responds to various exercise and nutritional stimuli. Students gain experiential learning through laboratories, practicums, and a semester-long internship focusing on exercise physiology and nutrition. The curriculum for the B.S. in Exercise Physiology and Metabolism is endorsed by the American College of Sports Medicine Exercise Specialist® certification.

At the completion of their program, students will be expected to demonstrate effective written, oral, and visual communication skills in a variety of settings and environments for “target audiences”; apply knowledge of physical, chemical, and biological sciences to exercise and nutrition sciences; apply knowledge of behavioral and social sciences to exercise and nutrition habits of diverse populations; demonstrate the ability to use, interpret, evaluate, and apply research principles to exercise and nutrition interventions; apply knowledge, skills and abilities of exercise and nutrition assessment to individuals representing various health and disease states; demonstrate their understanding of the role of healthcare systems and public policy in the maintenance and achievement of health; develop critical thinking skills throughout the Exercise Physiology and Metabolism curriculum by utilizing problem-solving activities and assignments; perform exercise and nutrition programming and work effectively as a team member in a variety of settings such as acute care, rehabilitation facilities and community health facilities; be well informed regarding the characteristics of various health and fitness settings and factors that impact their operation such as policies, regulatory agencies, reimbursement/funding, and legislative issues; and model professional skills and behaviors, including social responsibility, ethical practice, and a commitment to lifelong learning.

Students who complete this degree will be prepared for successful and rewarding careers and job opportunities including: clinical programs in rehabilitation institutes, hospitals, and clinics; cardiac, and pulmonary rehabilitation; community health centers; sports nutrition; university and worksite wellness programs; exercise and health promotion, commercial fitness centers; and personal and sports-specific training. Graduates who complete an approved clinical internship will be qualified to test for American College of Sports Medicine Exercise Specialist® certification. In addition, all graduates with a B.S. in Exercise Physiology and Metabolism may seek admission to the MS Exercise Science degree at Washington State University Spokane or graduate study in nutrition.

To prepare for the upper division Exercise Physiology and Metabolism coursework, students should be grounded in subject matter from biology, chemistry, anatomy, physiology, and nutrition. The following Program of Study is recommended for students who complete Years One and Two at WSU Pullman and Years Three and Four at WSU Spokane plus a 10-week internship.

### Schedules of Studies

**Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.**

#### BACHELOR OF SCIENCE IN EXERCISE PHYSIOLOGY AND METABOLISM

**(132 HOURS)**

**First Year**

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td><strong>First Term</strong></td>
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</tr>
<tr>
<td>Biol 102 [B]</td>
<td>4</td>
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<tr>
<td>Chem 105 [P]</td>
<td>4</td>
</tr>
<tr>
<td>English 101 [W]</td>
<td>3</td>
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<tr>
<td>GenEd 110 [A]</td>
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<td>Stat 205 [N]</td>
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<tr>
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<th>Hours</th>
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<tbody>
<tr>
<td><strong>Second Term</strong></td>
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</tr>
<tr>
<td>Chem 106 [P]</td>
<td>4</td>
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<tr>
<td>ComSt 102 [C]</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 111 [A]</td>
<td>3</td>
</tr>
<tr>
<td>MvSt 262 or Biol 315</td>
<td>4</td>
</tr>
<tr>
<td>Psych 105 [S]</td>
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**Second Year**

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<th>Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td><strong>First Term</strong></td>
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</tr>
<tr>
<td>Biol 251</td>
<td>4</td>
</tr>
<tr>
<td>Chem 345</td>
<td>4</td>
</tr>
<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Phil 260 [H]</td>
<td>3</td>
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<table>
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<tr>
<th>Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td><strong>Second Term</strong></td>
<td></td>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>FSHN 233</td>
<td>3</td>
</tr>
<tr>
<td>MBioS 101</td>
<td>4</td>
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<tr>
<td>MBioS 303</td>
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<tr>
<th>Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Complete Writing Portfolio</td>
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</table>
Description of Courses

Exercise Physiology and Metabolism Courses

ExMet

300 Professional Preparation 2 Prereq junior standing certified exercise physiology and metabolism major. ADA and ACSM standards of practice, code of ethics; societal and cultural issues that impact the health care industry.

320 Strength Training and Conditioning: Theory and Application 4 Prereq Biol 251; Biol 315 or MtvsT 262. Application of scientific principles of strength and conditioning as it relates to exercise training and sports.

340 Foods with Application to Physical Activity 3 (2-3) Prereq one semester of organic chemistry. Experimental approach to physical, chemical and sensory properties of foods; overview of culinary techniques, technology and application to physical activity.


400 Macronutrient Metabolism 3 Prereq FSHN 233, MBioS 303. Digestion, absorption, and metabolism of carbohydrates, protein and fats, and their utilization for energy.

401 Community Supervised Practice 9 Prereq completion of all exercise physiology and metabolism requirements through the 4th year. Advanced principles of community dietetic nutrition education along with hands-on community supervised practice experience.

402 Vitamin and Mineral Metabolism 2 Prereq ExMet 400. Absorption and metabolism of vitamins and minerals and their role in macronutrient metabolism and nutritional requirements for maintenance of health.

427 Nutritional Assessment and Lifestyle Counseling 3 (2-3) Prereq FSHN 233, Psych 105. Basic skills and concepts of nutrition assessment and lifestyle counseling of ambulatory adults using dietary intakes, menu planning and communication skills.

435 Exercise, Diet and Disease 4 Prereq ExMet 400; ExMet 402; ExSci 463. Pathophysiology of disease and implications for dietary and exercise interventions.

437 Diet Therapy 4 Prereq completion of all exercise physiology and metabolism requirements through the 4th year. Theoretical and practical base for diet modification and nutritional therapy in health and a variety of disease states. Cooperative course taught by UI (FCS 363), open to WSU students.

440 Clinical Supervised Practice 11 Prereq completion of all exercise physiology and metabolism requirements through the 4th year. Professional supervised experience outside in clinical dietetics. Meets American Dietetic Association requirements for registration eligibility. S, F grading.

450 Management and Facilities 3 Prereq senior standing; certified exercise physiology and metabolism major. Essential skills and guidelines for those in the health facility industry in establishing and maintaining a safe and proper facility.

451 Management Practices in Food Science 5 (1-11) Prereq completion of all exercise physiology and metabolism requirements through the 4th year. Advanced principles of food systems; institutional food service management along with offsite, hands-on food service supervised practice experience.

458 Nutrition and Exercise Throughout the Life Cycle 4 Prereq senior standing in exercise physiology and metabolism. Physical activity relating to nutritional needs and dietary patterns from infancy through old age and including maternal nutrition. Cooperative course taught by UI (FCS 486), open to WSU students.


470 Sports Nutrition 3 Prereq ExSci 463, FSHN 233, MBioS 303. Identification of energy, macro/micronutrients and fluid requirements during exercise; evaluation of dietary practices and ergogenic aids for pre- and post-competition, weight maintenance.

473 Nutrition in the Community 2 Prereq completion of all exercise physiology and metabolism requirements through the 4th year. Public health nutrition including assessment of communities, problem list development, program planning and an overview of existing programs and services. Cooperative course taught by UI (FCS 473), open to WSU students.

478 Electrocardiography, Medications and Procedures 3 (2-3) Prereq ExMet 435; ExSci 463; ExSci 476. Development of ECG interpretation skills, including 12-leads, with emphasis on procedures and impact of medication in resting and exercising persons.

479 Nutrition and Exercise Practicum 3 (1-6) May be repeated for credit; cumulative maximum 6 hours. Prereq ExMet 300; ExMet 400; ExMet 402; ExMet 427; ExMet 435; ExMet 465; ExSci 476. Supervised experience in applying exercise and nutrition assessment techniques and developing exercise and nutrition prescription for normal and diseased subjects.

480 Cardiopulmonary Rehabilitation 4 (3-3) Prereq ExMet 435; ExMet 465; ExSci 478; ExSci 463; ExSci 476. Principles and applications of exercise and nutrition assessment/ prescription and program management to cardiopulmonary and rehabilitation situations and populations.

490 Nutrition and Exercise Internship 10 Prereq completion of all coursework for BS in Exercise Physiology and Metabolism. Supervised offsite exercise and nutrition field experience to assess normal and diseased clients and develop/apply nutrition and exercise prescriptions. S, F grading.

Exercise Science Courses

ExSci

463 Advanced Exercise Physiology 4 (3-3) Prereq Biol 251; Biol 315 or MtvsT 262. Advanced undergraduate exercise physiology with emphasis on mechanisms regulating physiological responses to exercise across the life span.
**Health Sciences—Spokane**

**476 Exercise Testing and Prescription** 3 (2-3) Prereq ExSci 463. Principles of exercise testing and prescription based on current practices in physical education, physiology, and rehabilitation.

**501 Special Topics** 3 Prereq admission to Clinical and Experimental Exercise Science graduate program. Special topics in exercise physiology and metabolism.

**563 Exercise and Immune Response** 3 Rec ExSci 463. Influence of physical exercise on immune response and consequent impact on host susceptibility to disease and infection.

**565 Muscle Physiology and Exercise Biogenetics** 3 Rec ExSci 463. Bioenergetic, striated muscle metabolic, and neuroendocrine responses to exercise and training.

**567 Cardiopulmonary Exercise Physiology** 3 Rec ExSci 463. Pulmonary, circulatory, thermoregulatory, fluid balance and physiological system integration responses to exercise and training.

**568 Clinical Assessment and Prescription** 3 Rec ExSci 463, 476, 567. Development of knowledge and skills in clinical testing analysis, and exercise prescription for clinical populations. Cooperative course taught by UI (PE 593), open to WSU students.

**589 Research Techniques** 2 (1-3) or 3 (2-3) Application and use of research techniques and tools in physiology of exercise.

**590 Internship** V 2-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Opportunity in an educational, industrial, municipal or private sports or recreational setting; direct participation in tasks, research and reporting activities. S, F grading.

**596 Seminar** 1 or 2 May be repeated for credit.

**600 Special Projects or Independent Study** Variable credit. S, F grading.

**700 Master's Research, Thesis, and/or Examination** Variable credit. S, F grading.

**702 Master's Special Problems, Directed Study, and/or Examination Variable credit** Variable credit. S, F grading.

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**Department of History**

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Wilson 301
509-335-5139

Professor and Department Co-Chair, J. E. Kicza; Professor and Associate Co-Chair, R. Sutri; Professors, C. Goucher, R. L. Hume, S. Kale, L. Mercier, S. Peabody, J. Peterson, O. Svingen, M. Tolmachova; Associate Professors, R. Baumans, B. Farley, J. B. Gough, N. Kawamura, D. Pietz, H. Streets, R. S. Williams; Assistant Professors, R. McCoy, J. Sandus, J. Spohnholz, X. Wang, I. Wendt; Senior Instructors, L. Gerber, K. Meyer, R. Staab, Instructors, R. Chan, T. Jordan; Emeritus, D. Stratton.

Offerings in the field of history may be classified as American, Asian, European, and Latin American. The Department of History’s undergraduate program is designed to produce several outcomes. We expect students who complete the major requirements to: 1) identify and state problems of historical analysis; 2) communicate the solutions to the above in words; 3) understand the difference between fact and interpretation; 4) recognize the contested nature of evidence and the value of historical scholarly debate; 5) show awareness of change over time; 6) be able to place the present in a historically based context; and 7) demonstrate information retrieval skills required for historical research.

The Department of History’s Social Studies education program is designed to produce several outcomes. We expect students who complete the requirements to certify as a social studies education major to: 1) be familiar with principles of government, law and politics; 2) understand how geographic features and human cultures shape and impact environments; 3) understand local, regional, Washington State, United States and world history; 4) develop critical thinking skills that will allow and encourage them to be life-long learners; 5) develop and apply essential social studies concepts and skills.

A major in history can be used in government service, the new specialty of public history teaching, several areas of business and industry, and many other fields. It can also be used in preparation for study of the law, the ministry, archival work, and librarianship. Double majors or complementary minors combining history with other fields are easily arranged. The department offers courses of study leading to the degrees of Bachelor of Arts in History, Bachelor of Arts in Social Studies, Master of Arts in History, and Doctor of Philosophy. In cooperation with others, the department participates in the interdisciplinary Program in American Studies leading to the degree of Doctor of Philosophy.

**Preparation for Graduate Study**

Students who have had basic undergraduate training in history (approximately 12 hours) and who have had undergraduate majors in such subjects as American literature, economics, anthropology, and political science may be well prepared for graduate study in several fields of specialization in history. Adequate opportunities are provided for removing deficiencies by taking appropriate courses or special examinations.

Undergraduates who are pursuing their studies at other institutions or through other curricula at this institution and who contemplate graduate work in this department should select courses similar to those required in the schedule of studies.

**Schedules of Studies**

**Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.**

**HISTORY - EDUCATION OPTION (131 HOURS)**

Students who wish to earn a teaching credential must apply to the Teacher Preparation Program in the College of Education. They should consult with an advisor in history about choosing additional electives that may apply toward a minor or second major and that complement a History endorsement.

To certify in the History Education option, a student must have earned at least a 2.50 cumulative GPA.

The History Education major consists of 42 hours: 36 hours of History, including Hist 101, 102, 110, 111; one course from two of the following four sets: Hist 230, 231, 270, 271, 272, 273, 275; and one more non-western/global course (for a total of three in this category): 21 hours of 300-400-level History, which must include 300, 422, 469; and 480. EconS 102, Pol S 101, and Psych 105 are also required to meet state certification guidelines (these can also fulfill GERs). History courses and courses cross-listed with History do not count as GERs.

Students must have one year of a foreign language at the college level or two years at the high school level.

**First Year**

**First Term**

- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Hist 101 [H] (GER) 3
- Math Proficiency [N] (GER) 3 or 4
- Science Elective (GER) 4

**Second Term**

- Arts & Humanities [H,G] (GER) 3
- Biological [B] or Physical [P] Sciences (GER) 4
- EconS 102 [S], Pol S 101 [S], or Psych 105 [S] (GER) 3
- GenEd 111 [A] (GER) 3
- Hist 102 3

**Second Year**

**First Term**

- Biological [B] or Physical [P] Sciences (GER) 4
- EconS 102 [S], Pol S 101 [S], or Psych 105 [S] (GER) 3
- Engl 201 [W], 301 [W], or 302 [W] (GER) 3
- Hist 110 [S] (GER) 3
- Hist 200-level course 3

**Second Term**

- EconS 102 [S], Pol S 101 [S], or Psych 105 [S] (GER) 3
- Hist 111 [S] (GER) 3
- Hist 200-level course 3
- Intercultural Studies [I,G,K] (GER) 3
- T & L 300 1
- Complete Writing Portfolio

**Third Year**

**First Term**

300-400-level Hist Electives 6
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Hist 300 [M] 3
- T & L 301 2

**Second Term**

- 300-400-level Hist Elective 3
- Hist 422 3
Science GER [B,P] if needed for a total of 12 credits 1
T & L 317 2
Tier III Course [T] (GER) 3

**Fourth Year**

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<tr>
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<tbody>
<tr>
<td>300-400-level Hist Elective 1</td>
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<tr>
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<tr>
<td>T &amp; L 464</td>
<td>3</td>
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<tr>
<td>T &amp; L 465</td>
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<tr>
<td>Hist 480</td>
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<td>T &amp; L 469</td>
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**Fifth Year**

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<tr>
<td>T &amp; L 415</td>
<td>16</td>
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**Footnotes**

1 Pol S 101 and EconS 102 are state requirements for teacher certification in history and are recommended to fulfill GER requirements; Psych 105 is required for admission to the Teacher Preparation Program.
2 One from Engl 201, 301, 302 is required for admission to the Teacher Preparation Program. 2
3 Choose two from two categories: 230, 231; 270, 271; 272, 273, 275.

4 History education majors must choose their 12 hours of 300-400 electives from the following: one from Hist 411, 413, 414, 415, 416, one from Hist 412, 417, 418, 419, one from European history course list (see advisor) and one from world history course list (see advisor).

**HISTORY - GENERAL OPTION (120 HOURS)**

36 semester hours of history is required including 6 hours of US history, 6 hours of European history, and 9 hours of Non-Western/Global history; 21 hours at the 300-400-level, which must include Hist 300 and 469; and a 12 hour concentration (at least 6 hours 300-400-level) in the same or in related disciplines with the advisor's approval.

It is assumed that prior to the junior year the student will have completed courses meeting General Education and College of Liberal Arts requirements for graduation.

**First Year**

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<tr>
<th>First Term</th>
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<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Math Proficiency [N] (GER)</td>
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<td>Science Elective (GER)</td>
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<tr>
<td>Biological [B] or Physical [P] Sciences (GER)</td>
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<td>Communication Proficiency [C,W] (GER)</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Intercultural Studies [L,G,K] (GER)</td>
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<td>Social Sciences [S,K] (GER)</td>
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**Second Year**

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<tbody>
<tr>
<td>100-200-level Hist Electives 1</td>
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<td>Arts &amp; Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Biological [B] or Physical [P] Sciences (GER)</td>
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<tr>
<td>100-200-level Hist Electives 1</td>
<td>6</td>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
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<tr>
<td>Foreign Language, if necessary, or Elective 3 or 4</td>
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<td>Complete Writing Portfolio</td>
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**Third Year**

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<th>First Term</th>
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<td>100-200-level Degree Program Course 2</td>
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<td>300-400-level Hist Electives 1</td>
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<td>Foreign Language, if necessary, or Elective 3 or 4</td>
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<td>Hist 300 or Hist Elective (any level) 3</td>
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<td>300-400-level Degree Program Course 2</td>
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<td>300-400-level Electives</td>
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<tr>
<td>300-400-level Hist Elective</td>
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<td>Hist 300</td>
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**Fourth Year**

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<tr>
<td>300-400-level Hist Electives 1</td>
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<th>Second Term</th>
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<tr>
<td>300-400-level Electives</td>
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<tr>
<td>Hist 469</td>
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<tr>
<td>Tier III Course [T] (GER)</td>
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**Footnotes**

1 History Electives must include 6 hours US history, 6 hours European history, and 9 hours Non-Western/Global history.
2 Courses in the same or in related disciplines with the advisor's approval; students are encouraged to explore, in consultation with their advisor, a double-major or strong minor in a complementary subject field.

**HISTORY - PRE-LAW OPTION (120 HOURS)**

36 semester hours in history is required including 6 hours of US history, 6 hours of European history, and 9 hours of Non-Western/Global history; 12 hours of 100-200 level Hist; 3 hours of additional Hist; 21 hours of 300-400-level, which must include Hist 300 and 469. Included in the program of study below are 30 hours of courses in communication, social sciences and humanities, economics and business that are valuable preparation for study of the law. In addition to these requirements, students are urged to elect, in consultation with their advisor, courses that complement the curriculum's broad subject disciplines with the advisor's approval.

**First Term**

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**Second Term**

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**Third Term**

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**Fourth Term**

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**Footnotes**

1 Pre-Law requirements (may also fulfill GER requirements) – Political Science: Pol S 300 and two courses from 101, 102, 198 or 206; Business/accounting: two courses from EconS 101, 102, 198, Acctg 230, B Law 210 or Fin 323; Social Sciences/Humanities: one course each from [Anth 101 or 198], [Phil 201, 260, 360, 370 and 470], [Psych 105 or 198] and [Soc 101 or 198]; English: one course from Engl 201, 301 or 402.
2 100-200 level History Electives. Choose from 101, 102, 110, 111, 230, 231, 270, 272, 273, 275
3 300-400 level history electives. The following courses are recommended to fulfill upper-division requirements: European History: 341, 342, 343, 440, 441, 444, 445, 446, 447, 450, 453, 455, 459, 488, 489.
SOCIAL STUDIES - EDUCATION OPTION (137 HOURS)

Social Studies is a major for students who plan to earn both a BA and a teaching endorsement in the multidisciplinary fields of history and the social sciences: anthropology, economics, geography, political science, psychology, sociology. Social Studies majors who wish to earn a teaching credential must apply to the Teacher Preparation Program in the College of Education. They should consult with an advisor in history about choosing additional electives that may apply toward a minor or second major and that complement a Social Studies endorsement.

To certify in Social Studies, a student must have earned at least a 2.50 cumulative GPA.

The social studies education major consists of 63 hours: lower-division (30 hours) to include Hist 101, 102, 110, 111; one course from two of the following four sets: Hist 230, 231, 270, 271, 272, 273, 275; one from Anth 101, 198, 203, 260; EconS 102; Pol S 101; Soc 101. Upper-division (30 hours): 15 hours of history, to include 422, one European, one non-western/global, and one American/U.S. course; 15 hours of social sciences, to include one from EconS 320, 327, 416, 427, 430 [T]; one from geography (Anth 309, Hist 319, 495); one from Pol S 300, 316, 427, 450, 455 or Crim J 320; and 6 additional hours from Anth 307, 316, 320, 330, 331, 350; Psych 310, 324, 361, 470; Soc 320, 351, 384, 430; Hist 480 is also required. An approved seminar is also required but may double-count with the upper-division courses above.

As social studies is an interdisciplinary major, 21 credits may double count to fulfill GER and major requirements.

Students must have one year of a foreign language at the college level or two years at the high school level.

First Year

First Term
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Hist 101 [H] (GER) 3
- Math Proficiency [N] (GER) 3 or 4
- Science Elective (GER) 4

Second Term
- Anth 101 [K] (GER) 3
- Biological [B] or Physical [P] Sciences (GER) 3
- GenEd 111 [A] (GER) 3
- Hist 102 [H] (GER) 3
- Soc 101 [S,D] (GER) 3

Second Year

First Term
- Biological [B] or Physical [P] Sciences (GER) 4
- EconS 102 [S] (GER) 3
- Hist 110 [S] (GER) 3
- Hist 200-level course 1 3
- Pol S 101 [S] or Psych 105 [S] (GER) 2 3

Second Term
- Engl 201 [W], 301 [W], or 302 [W] (GER) 3
- Hist 111 [S] (GER) 3
- Hist-200 level course 1 3
- Pol S 101 [S] or Psych 105 [S] (GER) 2 3

T & L 300
Complete Writing Portfolio 1

Third Year

First Term
- 300-400-level Hist Electives 1 4
- T & L 301 2

Second Term
- Anth/Psych/Soc Electives from list 1 3
- Hist 422 3
- Pol S Elective from list 3
- Science GER [B,P] if needed for a total of 12 credits 1
- T & L 317 2

Fourth Year

First Term
- 300-400-level Hist Elective 1 4
- T & L 464 3
- T & L 465 3
- T & L 466 2
- Tier III Course [T] (GER) 3

Second Term
- 300-400-level Hist Elective 1 4
- EdPsy 468 3
- Hist 480 3
- T & L 467 3
- T & L 469 2
- T & L 470 2

Fifth Year

First Term
- T & L 415 16


Footnotes
2. T & L 105 is required for admission to the Teacher Preparation Program; one from Engl 201, 301, 302 is also required for admission.
3. An approved seminar, Hist 469 or Soc 320, may double-count as a major course.
4. Social studies majors must choose their 12 hours of 300-400 electives from the following: one from European history list, one from world history list, one from American/U.S. history list and one additional elective.
5. Tier III course may double-count as a major course.

Minors

History

A minor in history requires 18 hours, 9 of which must be in 300-400-level courses taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. A grade of C or better is required in all course work for the minor.

Description of Courses

History

101 [H] Classical and Christian Europe 3
Greece and Rome, birth of Christianity and Islam, Middle Ages, Renaissance, Reformation, religious wars, Louis XIV.

102 [H] Modern Europe 3
War, revolution, industrialization, culture 18th to 20th centuries; imperialism, democracy, and totalitarianism; Europe’s leaders Napoleon to Hitler; Post-WW II developments.

110 [S] American History to 1877 3
Social, economic, cultural history of British mainland colonies/United States to 1877.

111 [S] American History Since 1877 3
Social, economic, cultural history of United States, 1877 to present.

150 [S,D] Peoples of the United States 3
Examination of the peoples of the United States from the beginnings of the colonial era to the present.

201 [K] Asian/Pacific American History 3
Same as CES 211.

205 [H,D] African American History 3
Same as CES 235.

216 [S,D] American Cultures 3
Same as Am St 216.

230 [K] Latin America, The Colonial Period 3
Overview of the most significant events, social and ethnic groups, practices, and institutions of colonial Latin America.

231 [K] Latin America, The National Period 3
Investigation of broad themes, individual national histories, and United States policy in Latin America over the past two centuries.

255 [S,D] Chicana/o History 3
Same as CES 255.

270 [K] India: History and Culture 3
Development of civilization; and contemporary societies of India and South Asia.

271 [K] Southeast Asian History: Vietnam to Indonesia 3
Historical introduction to Southeast Asian social, religious, political, economic and cultural institutions including Vietnam, Thailand, Burma, the Philippines and Indonesia.

272 [I] Introduction to Middle Eastern History 3
History of the Middle East from Muhammad to the present; political and religious development and the impact of empires.

273 [G] Foundations of Islamic Civilization 3
Main ideas and institutions that have characterized Islamic civilization since its founding, presented thematically.

275 [K] Introduction to East Asian Culture 3
Civilizations of China and Japan.

280 [S,D] Race and Law in American History 3
Same as CES 280.
290 [S] Honors History II 3 Prereq honors students only. Introduction to social science research through a historical lens.

298 [S,D] History of Women in American Society 3 The roles of women—social, economic, political—in American history from colonial times to the present.

300 [M] Writing about History 3 Prereq certified major in history or social studies. Historical topics, use of sources, analytical thought, and precision in language.

306 [K] Cultures and Peoples of the Middle East 3 Same as Anth 306.

308 [K] North American Indian History, Precontact to Present 3 History of North American Indian peoples from circa 1350 to present.

313 [S] Black Freedom Struggle 3 Same as CES 335.

314 [H,D] American Roots: Immigration, Migration, and Ethnic Identity 3 An analysis of immigration to migration within the US including political and social consequences and the experiences of ethnic groups since the early 19th century.

315 [S,D] Poverty and Policy in American History 3 Prereq junior standing. Poverty in America and attempts to ameliorate it including race/ gender and poverty and poverty policy.

319 Geographical History of the US 3 Perspectives on the geographical history of the U.S. from early times to the present.

320 [S,M] American Agriculture and Rural Life 3 Same as Ag Ec 320.


322 [H,D] US Popular Culture Since 1930 3 Movies, radio, television, sports, music, and other popular arts in historical context.

325 [S,D] Food in the United States 3 Acceptance, preparation, and acquisition of particular foods reveals the ethnic, cultural, and gender differences of peoples in the US.


331 [K] Cultural History in Latin America 3 Social development of Blacks, Whites, and Indians in Latin America from the conquest to the modern era.

335 [K] Women in Latin American History 3 Survey of women’s changing roles throughout Latin America from pre colonial to present.

337 [H] Women in the Ancient World 3 Role of women in ancient Egypt, Mesopotamia, Israel, Greece, and Rome; focus on the formation of western attitudes toward women.

340 [H] Ancient Greece 3 History and culture of pre Christian Greek civilization.

341 [H] Rome: Republic and Empire 3 History and culture of the Roman world from the independence of the city to the onset of the medieval order.

342 [H] History of England to 1485 3 English history; intellectual and cultural development.

350 [S] European Women’s History, 1400-1800 3 Women’s experiences in Europe from the Renaissance to the Enlightenment and the ideas and roles that shaped their opportunities.

355 [H] History of European Popular Culture 3 The transformation of Europe’s popular culture (music, games, stories, beliefs) through social, religious, print, and industrial revolutions.

370 [G] History of Ancient and Medieval India 3 Historical development to 1500 CE of states, religions, caste society, gender customs and social ecology in India.

373 [G] Chinese Civilization 3 Growth of Chinese civilization from the dawn of history to the present.


380 [S] History of Medicine 3 Medicine in English-speaking societies, Middle Ages to present; development of medical care as a social institution.

381 [S] Science in Western Civilization Through Newton 3 Development of Western science and its influence on European culture and society.

382 [S] Science in Western Civilization from Newton to Einstein 3 Development of modern science and its influence on Western culture and society.

386 World War II in Europe 3 Causes for war; military operations; economic mobilization; social and cultural change; occupation and resistance; the Holocaust; the legacy of war.

387 World War II in Asia and the Pacific 3 Imperial rivalries in Asia; Japanese militarism; military, ideological and social aspects of the war; the atomic bomb; memory of the war.


390 US Military History 3 American military history from 1630 to the present. Themes will include civil military relations, the conduct of war, and political-military relations.

394 Topics in History 3 May be repeated for credit; cumulative maximum 6 hours. Prereq junior status; 6 hours of Hist. Analytical study of selected historical movements and events.

395 Topics in History 3 May be repeated for credit; cumulative maximum 6 hours. Analytical study of selected historical movements and events.

398 [H,D] History of Women in the American West 3 The multicultural history of women in the west through women’s literature, archives, and oral history.

400 History in Media 3 Representation of historical people and events through different media e.g., text, film, video, and computers.

408 [T,D] Indians of the Northwest 3 Prereq Anth 320, CES 171, 375, 377, or Hist 308; completion of one Tier I and three Tier II courses. Same as CES 475.

409 [T] American Environmental History 3 Prereq completion of one Tier I and three Tier II courses. A history of environmental change, ideas of nature, natural resource development, conservation politics, science and environmental policy.


411 American Diplomatic History, 1776-1914 3 Policies and principles characteristic of American diplomacy from 1776 to 1914. Credit not granted for both Hist 411 and 511.

412 American Diplomatic History in the 20th Century 3 Credit not granted for both Hist 412 and 512.

413 [M] Early American History to 1750 3 The cultures and interactions of Native Americans, Europeans, and Africans; development of colonial American societies and institutions.

414 The Era of the American Revolution 3 The origins of the American Revolution, the War of Independence, and the emergence of republican government and society.

415 Jeffersonian-Jacksonian America 3 Social and political history of the United States from 1789 to 1845; Jeffersonian and Jacksonian eras. Credit not granted for both Hist 415 and 515.

416 Civil War and Reconstruction 3 The Civil War as a problem in historical causation and social, political, and economic impact of the war. Credit not granted for both Hist 416 and 516.

417 Rise of Modern America 3 Response to industrialism in the Gilded Age and the reform movements of Populism and Progressivism. Credit not granted for both Hist 417 and 517.

418 United States, 1914-1945 3 America through World War I, cultural tensions of the Twenties, and the crises of Depression and WWII. Credit not granted for both Hist 418 and 518.

419 United States, 1945-Present 3 International and domestic impact of the Cold War, era of McCarthyism, American aspirations, tensions and conflicts in the post-industrial era. Credit not granted for both Hist 419 and 519.

420 American Constitutional History 3 Prereq Hist 110 or Pol S 101. Credit not granted for both Hist 420 and 520.
421 The American West 3 Multicultural exploration of the frontier experience and western America; environment, economic development, gender, class and race emphasized. Credit not granted for both Hist 421 and 521.

422 History of the Pacific Northwest 3 Political, social, economic and environmental history of the Pacific Northwest. Fulfills the teaching certification requirement for Washington state history. Credit not granted for both Hist 422 and 522.

423 Radicals, Reformers, and Romantica: The Impact 3 Changing thought and its impact in the United States from colonial times to the present. Credit not granted for both Hist 423 and 523.

425 [T] The City in History 3 Prereq completion of one Tier I and three Tier II courses. Description and comparison of the city through history in European and one or more non-Western cultures.

426 [T] Workers Across North America 3 Prereq completion of one Tier I and three Tier II courses. Same as CES 426.

427 [M] Public History: Theory and Methodology 3 An introduction to the broad range of non-traditional careers in history. Credit not granted for both Hist 427 and 527.

430 [M] History of Mexico 3 War of independence, 19th century Mexico and the liberal-conservative struggle; modern Mexico since the Revolution of 1910. Credit not granted for both Hist 430 and 530.

432 20th Century Latin America 3 Contemporary developments, policies and trends in the Latin American states. Credit not granted for both Hist 432 and 532.

433 History of Cuba and the Caribbean 3 Historical development of the Caribbean, with emphasis on Cuba, from the Spanish arrival to Castro’s revolution. Credit not granted for both Hist 433 and 533.

434 Revolution in Latin America 3 Social and political development in Central America; reasons for dictatorships and revolutionary movements; comparison with other Latin American regions. Credit not granted for both Hist 434 and 534.

435 [T] European Expansion Overseas, 1400-1800 3 Prereq completion of one Tier I and three Tier II courses. The factors underlying European overseas expansion before 1800 and its impact on indigenous societies and world trading patterns.

436 [T] Imperialism in the Modern World 3 Prereq completion of one Tier I and three Tier II courses. History of imperialism (colonial, economic, territorial, cultural) since 1800 as a global phenomenon.

437 Topics in History—Study Abroad 3
480 Methods of Teaching Social Studies
3 Prereq certification; by interview only. Methods, resources, selection of content, past and present issues in social studies education.

483 [T] Technology and Social Change to 1950
3 Prereq completion of one Tier I and three Tier II courses. The emergence of modern technological society with emphasis on the period 1750-1950.

486 United States Foreign Relations
3 Same as Pol S 427.

489 [M] Recent Political Thought
3 Same as Pol S 438.

491 [T] History of World Trade
3 Prereq completion of one Tier I and three Tier II courses. What food selection and preparation reveals about cultural integration around the world from the medieval era to the present.

492 [T] Cultural Appetites: Food in World History
3 Prereq completion of one Tier I and three Tier II courses. What food selection and preparation reveals about cultural integration around the world from the medieval era to the present.

494 [T] Global Environmental History
3 Historical dynamics of human communities and their ecological settings.

495 [T] Space, Place, and Power in History: Historical Geography in Global Perspective
3 Prereq completion of one Tier I and three Tier II courses. Introduction to the discipline of historical geography; geographical and spatial approaches to European, North American, and Asian history.

496 Topics in American Studies
3 Same as Engl 496. Credit not granted for both Hist 496 and 596.

497 Seminar
3 May be repeated for credit; cumulative maximum 6 hours.

498 History Internship
V 1-12 May be repeated for credit; cumulative maximum 12 hours. Prereq major or minor in history. Participation as intern in public or private sectors. Credit not granted for both Hist 498 and 598.

499 Special Problems
V 1-4 May be repeated for credit. S, F grading.

510 Field Course in American History
3 May be repeated for credit. Readings and interpretive problems of American history.

511 American Diplomatic History 1776-1914
3 Graduate-level counterpart of Hist 411; additional requirements. Credit not granted for both Hist 411 and 511.

512 American Diplomatic History in the 20th Century
3 Graduate-level counterpart of Hist 412; additional requirements. Credit not granted for both Hist 412 and 512.

513 Theory and Method in American Studies
3 Same as Am St 513.

515 Jeffersonian-Jacksonian America
3 Graduate-level counterpart of Hist 415; additional requirements. Credit not granted for both Hist 415 and 515.

516 Civil War and Reconstruction
3 Graduate-level counterpart of Hist 416; additional requirements. Credit not granted for both Hist 416 and 516.

517 Rise of Modern America
3 Graduate-level counterpart of Hist 417; additional requirements. Credit not granted for both Hist 417 and 517.

518 United States, 1914-1945
3 Graduate-level counterpart of Hist 418; additional requirements. Credit not granted for both Hist 418 and 518.

519 United States, 1945-Present
3 Graduate-level counterpart of Hist 419; additional requirements. Credit not granted for both Hist 419 and 519.

520 American Constitutional History
3 Prereq Hist 110 or Pol S 101, Graduate-level counterpart of Hist 420; additional requirements. Credit not granted for both Hist 420 and 520.

521 The American West
3 Graduate-level counterpart of Hist 421; additional requirements. Credit not granted for both Hist 421 and 521.

522 History of the Pacific Northwest
3 Graduate-level counterpart of Hist 422; additional requirements. Credit not granted for both Hist 422 and 522.

523 Radicals, Reformers, and Romantics: The Impact
3 Graduate-level counterpart of Hist 423; additional requirements. Credit not granted for both Hist 423 and 523.

525 Seminar in American History
3 May be repeated for credit.

527 Public History: Theory and Methodology
3 Graduate-level counterpart of Hist 427; additional requirements. Credit not granted for both Hist 427 and 527.

528 Seminar in Public History
3 May be repeated for credit; cumulative maximum 6 hours. The development of skills at the graduate level to be used in nontraditional careers for historians.

529 Interpreting History through Material Culture
3 May be repeated for credit; cumulative maximum 6 hours. Historical interpretation to work on major historic preservation and museum projects.

530 History of Mexico
3 Graduate-level counterpart of Hist 430; additional requirements. Credit not granted for both Hist 430 and 530.

532 20th Century Latin America
3 Prereq graduate standing. Graduate-level counterpart of Hist 432; additional requirements. Credit not granted for both Hist 432 and 532.

533 History of Cuba and the Caribbean
3 Prereq graduate standing. Graduate-level counterpart of Hist 433; additional requirements. Credit not granted for both Hist 433 and 533.

534 Revolution in Latin America
3 Prereq graduate standing. Graduate-level counterpart of Hist 434; additional requirements. Credit not granted for both Hist 434 and 534.

535 Field Course in Latin American History
3 May be repeated for credit; cumulative maximum 9 hours. Readings and interpretive problems in Latin American history.

539 Slavery, Abolition and Emancipation in World History
3 Graduate-level counterpart of Hist 439; additional requirements. Credit not granted for both Hist 439 and 539.

540 Seminar in European History
3 May be repeated for credit.

547 Europe in the French Revolutionary and Napoleonic Era, 1789 to 1815
3 Graduate-level counterpart of Hist 447; additional requirements. Credit not granted for both Hist 447 and 547.

549 Europe and Two World Wars, 1914-1945
3 Graduate-level counterpart of Hist 449; additional requirements. Credit not granted for both Hist 449 and 549.

550 Europe Since 1945
3 Graduate-level counterpart of Hist 450; additional requirements. Credit not granted for both Hist 450 and 550.

553 Conservatism, Liberalism, and Socialism: Europe, 1815-1870
3 Graduate-level counterpart of Hist 453; additional requirements. Credit not granted for both Hist 453 and 553.

554 Nationalism and National Conflict: Europe, 1870-1914
3 Graduate-level counterpart of Hist 454; additional requirements. Credit not granted for both Hist 454 and 554.

560 Field Course in Early European History
3 May be repeated for credit; cumulative maximum 9 hours. Readings and issues in early European history.

562 History of Imperial Russia
3 Graduate-level counterpart of Hist 462; additional requirements. Credit not granted for both Hist 462 and 562.

563 History of the Soviet Union
3 Graduate-level counterpart of Hist 463; additional requirements. Credit not granted for both Hist 463 and 563.

564 Comparative Genocide
3 Graduate-level counterpart of Hist 464; additional requirements. Credit not granted for both Hist 464 and 564.

567 Modern France
3 Graduate-level counterpart of Hist 467; additional requirements. Credit not granted for both Hist 467 and 567.

568 Hitler and Nazi Germany
3 Graduate-level counterpart of Hist 468; additional requirements. Credit not granted for both 468 and 568.

569 Field Course in Modern European History
3 May be repeated for credit; cumulative maximum 9 hours. Readings and interpretive problems in modern European history.

570 World History Theory and Methods
3 May be repeated for credit; cumulative maximum 9 hours. Historiographic overview of the field of world history.
Honors College

honors.wsu.edu
Honors Hall 130
509-335-4505
Libby A. Walker, Interim Dean.

The mission of the Honors College is to offer students of high ability and initiative an enriched, four-year core curriculum that satisfies university graduation requirements and promotes global competencies. The Honors College helps students develop genuine intellectual curiosity and a life-long love of learning through an enriched series of courses and independent work. Honors students acquire the broad foundations of liberal learning in the natural and social sciences, the arts and humanities, and cultures of the world. In addition, the Honors College requires a proficiency in foreign language and encourages education abroad as premier vehicles for acquiring key competencies for an increasingly globalized society and economy.

Specifically, as a general education program, the Honors College expects that its graduates will be able to: (1) construct a reasoned and evidence-based position on an issue that takes into account their own and others’ views; (2) use the library catalog, databases, and the Internet to find relevant information while critically evaluating the quality of those information resources; (3) demonstrate respect for different cultural systems and traditions and their contributions to society; (4) choose the appropriate methodology and theoretical framework to solve a problem or answer a question in their discipline; (5) write and speak effectively in different contexts for a variety of audiences; (6) learn to apply quantitative tools and draw conclusions; and (7) demonstrate proficiency in a foreign language.

Courses offered through the University Honors College are only open to students enrolled in the program. For admissions, see the UHC section of the catalog.

Honors College Requirements

A bachelor's degree earned through the University Honors College requires approximately the same number of total semester hours as required by the General Education Program. Students in the UHC are not required to complete the General Education Requirements for graduation.

University Honors College students are required to complete the courses specified in the schedule of studies. The mathematics requirement for students in the University Honors College can be met in a number of ways (see footnote 1). In addition, students complete a three-credit Honors Thesis in the junior or senior year. A few majors will fulfill this requirement through coursework. Each student must choose an academic advisor, complete a significant piece of writing, and make a public presentation. The Honors Certificate of Global Competencies requires a thesis with an international topic that is part of a study abroad experience. Students who present an outstanding thesis may receive a “Pass with Distinction” on their final transcript.

The Honors College requires its students to demonstrate proficiency in a foreign language. An online examination is administered upon entrance to the Honors College. If additional preparation in a foreign language is necessary, students will work with an Honors advisor to develop an appropriate course of study.

For continued enrollment in the University Honors College, students must maintain a 3.2 cumulative GPA. Any graded courses used to fulfill Honors College graduation requirements must receive a grade of C or better. Students who satisfactorily complete all UHC requirements and a cumulative GPA of 3.2 will receive a University Honors Certificate of Completion provided they have completed a minimum of 15 graded credits of honors courses. Certification will be noted on the transcript.

Each semester, students enrolled in the Honors College take one to three Honors courses in addition to their major courses.

Freshman Year

English 298
Math requirement1
Foreign Language competency requirement2 Science 298 (fall only)3 Science 299 (spring only)3

Sophomore or Junior Year

UH 270 Principles and Research Methods in Social Sciences
UH 280 Contextual Understanding in the Arts and Humanities
UH 290 Science as a Way of Knowing
UH 398 Honors Thesis Proposal Seminar

Junior or Senior Year

UH 370 Case Study: Global Issues in Social Science
UH 380 Case Study: Case Study: Application of Arts and Humanities to Global Issues
UH 390 Application of Science to Global Issues
UH 450 Honors Thesis4

1Students who qualify for Calculus II (Math 172) on the basis of the math placement test receive credit for Math 171 and thereby fulfill this requirement. Other students take the math required by their major. Honors College accepts: Math 105, 140, 171, 202, 205, 206, 212, and 251 and 252 combined. Check with a University Honors College advisor for any questions concerning the math requirement.

2Assessed proficiency in a second language at the intermediate level. May be completed at any time before graduation. Check with an Honors advisor for specifics.

3Science majors complete a required lab science (4 credits)

4Three credits required. The Honors College will accept credits required for other departmental theses or projects. Please check with an Honors advisor.

Timing Optional with Student:

Optional: UH 430 (Education Abroad Practicum and Research)

Certificates

Honors Certificate of Global Competencies

The Certificate of Global Competencies is an elective certificate for Honors students whose international interests and/or career objectives can be enhanced by an integrated program of language...
study, academic coursework, and study abroad. Students receive a notation on their transcript IN ADDITION to the Honors Certificate of Completion. The Certificate of Global Competencies builds on the courses required for the Honors Certificate of Completion. Students who enter with good foreign language preparation usually will not require extra time to complete both certificates.

Twenty-three credits are required for the Certificate of Global Competencies. A minimum of 14 credits must be taken for a letter grade. At least 12 of the credits must be taken at WSU. A grade of C or better must be earned in each of the required, elective and transfer courses in order to qualify for the certificate. The university undergraduate certificate fee will apply. Students are strongly encouraged to work with an Honors advisor to plan an appropriate schedule of studies.

The certificate entails requirements in three areas:

1. Foreign Language competence: A minimum of 4 graded credits at the 204 level or higher, and fourth semester competence are required. Fifth semester competence is preferred. Most students will complete 6-8 graded credits in a foreign language.

2. Education abroad: A minimum of 6 graded credits from one term abroad or longer in an approved program. A “term” may include a summer session with a full academic load. A typical semester abroad in an approved program will result in 12-15 WSU credits.

3. Coursework: A minimum of 11 graded credits and 3 S,F thesis credits are required. The following courses are required: UH 300 (focused on language/culture/continuing study abroad experience), UH 330, UH 350, UH 430, and UH 450 (focus on an international topic).

Description of Courses

University Honors Courses

Anth 198 – Anthropology Honors
Chem 116 – Chemical Principles Honors II
Econ 198 – Economics Honors
Engl 298 – Writing and Research Honors
Hist 290 – History Honors
Math 283 – Honors Calculus III
Phil 198 – Philosophy Honors
Phys 205 – Physics Honors I
Phys 206 – Physics Honors II
Pol S 198 – Political Science Honors
Psych 198 – Psychology Honors
Sci 298 – Sciences for Honors Students I
Sci 299 – Sciences for Honors Students II
Soc 198 – Sociology Honors
UH 270 – Principles and Research Methods in Social Sciences
UH 280 – Contextual Understanding in the Arts and Humanities
UH 290 – Science as a Way of Knowing
UH 300 – Honors Seminar
UH 330 – Development of Western Civilization
UH 350 – Development of Global Civilizations
UH 370 – Case Study: Global Issues
UH 380 – Case Study: Application of Arts and Humanities to Global Issues

UH 390 – Case Study: Application of Science to Global Issues
UH 398 – Honors Thesis Proposal Seminar
UH 410 – Domain of the Sciences
UH 430 – Honors Education Abroad Research
UH 440 – Domain of the Arts
UH 450 – Honors Thesis or Project
UH 499 – Special Problems

U II

270 Principles and Research Methods in Social Science 3 Scholarship in social sciences; exposure to theoretical frameworks.

275 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

280 Contextual Understanding in the Arts and Humanities 3 Scholarship in the arts/humanities; exposure to theoretical frameworks.

290 Science as a Way of Knowing 3 Prereq science or engineering majors. Exploration of how scientific knowledge is acquired, refined and advanced; hands-on experience with scientific scholarship

300 Honors Seminar 2 May be repeated for credit; cumulative maximum 6 hours In-depth study of selected topics.

301 University Scholars Lecture Series 1 May be repeated for credit; cumulative maximum 3 hours. Themed lecture series and discussion seminar.

330 Development of Western Civilization 3 Examination of the literary, cultural, philosophical, and historical traditions within Western civilization. Required of all Honors College students in their junior or senior year.

350 Development of Global Civilizations 3 Cultural and historical traditions of one or more civilizations; primary focus on Asian, African, Middle Eastern, and South American civilizations. Required of all Honors College students in their junior or senior year.

370 Case Study: Global Issues in Social Sciences Prereq U H 270. Using research skills to analyze a global case study or international perspective in the social sciences.

380 Case Study: Global Issues in the Arts and Humanities 3 Prereq U H 280. Using research skills to analyze a global case study or international perspective in the arts/humanities.

390 Case Study: Global Issues in the Sciences 3 Prereq U H 290 or 299. Using research skills to analyze a global case study or international perspective in the sciences.

398 Honors Thesis Proposal Seminar 1 Prereq 45 semester hours. Seminar to complete the honors thesis proposal for U H 450. S, F grading.

399 Honors Thesis Seminar 1 Prereq U H 398; 45 semester hours. Seminar to complete honors thesis for U H 450. S, F grading.

400 Honors Culture and Arts Practicum V 1-3 May be repeated for credit; cumulative maximum 6 hours. May be used to fulfill the independent study requirement for the Honors College. S, F grading.

410 Domain of the Sciences 3 Prereq admittance to Honors Program. Examination of scientific methodologies and their connections to human society.

430 Education Abroad Research V 1-4 May be repeated for credit; cumulative maximum 6 hours. Special assignments and research related to education abroad.

440 Domain of the Arts 3 An examination, frequently comparative, of the visual, literary, environmental, and performing arts.

450 Honors Thesis or Project V 1-4 May be repeated for credit; cumulative maximum 4 hours. Thesis or project directed by student’s major department. S, F grading.

480 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Department of Horticulture and Landscape Architecture

www.hortla.wsu.edu
Johnson Hall 149
509-335-9502


HORTICULTURE Courses in horticulture are designed to give instruction in enology and viticulture, fruit, vegetable, and ornamental production, handling, utilization, and management. Emphasis is on developing an understanding of plant growth and development fundamental to crop management. A production and management emphasis is designed to prepare students to be professionals in production, handling and processing, marketing, consulting, government, management, environmental and related fields. A science emphasis is designed to prepare students for graduate study and careers in research and teaching. Additional emphases are available in consultation with an advisor. Students in horticulture may focus on environmental horticulture, fruits and vegetables, tree fruit management, or viticulture and enology.
Horticultural production and management students are encouraged to minor in business administration or agricultural economics. Horticultural science students are encouraged to take additional courses in chemistry, biochemistry, genetics, mathematics, and physics. The BS in Horticulture degree program provides students with the following learning outcomes: basic and functional understanding of the scientific basis and interdisciplinary nature of horticulture and horticultural crop production systems; the importance of the development of strong technical, written, and oral communication skills; knowledge and skills related to the application of emerging technologies in the horticultural sciences; an understanding of the role of plants in society; and the knowledge and skills necessary to function as an entry-level practitioner in the horticultural industry and to become, with experience, a successful horticulturist.

An interdisciplinary curriculum in integrated pest management is available to those students whose interests span the areas of horticulture and pest management. The curriculum is described under the entomology section of this bulletin. The department offers courses of study leading to the degrees of Bachelor of Science in Horticulture, Bachelor of Landscape Architecture, Master of Science in Horticulture, Master of Science in Landscape Architecture, and Doctor of Philosophy.

Preparation for Graduate Study

Students with undergraduate majors in the plant sciences, including horticulture, crop science, plant pathology, environmental science, genetics, plant physiology and biochemistry, may be well prepared for graduate study in horticulture. Undergraduate students who are pursuing their studies at other institutions, or through other curricula at this institution, and who contemplate graduate work in horticulture should take as many courses in the basic physical and biological sciences as possible.

LANDSCAPE ARCHITECTURE

Landscape architecture is the professional art and science of planning and designing land elements so that the activities of people are in harmony with their environment. The practice ranges in scale from the design of residential and garden landscapes to planning and design of complex projects such as cities and regions.

The curriculum is accredited by the American Society of Landscape Architects (ASLA). It stresses a broadly based course of study emphasizing residential, community, and urban design; site, regional and land use planning, and professional practice methods.

The curriculum is divided into two parts: pre-landscape architecture and landscape architecture. The opportunity exists to participate in special studies, professional work experiences and foreign study.

The Bachelor of Landscape Architecture degree program provides students with the following learning outcomes: basic knowledge and skills in critical thinking, design/inquiry/problem solving, design technology, and design communications necessary to function as an entry level practitioner of landscape architecture and become with experience, a creative and professional practitioner of landscape architecture, and exposure to a broad array of design and planning opportunities from which to experience and evaluate a variety of social, political, natural resource, and aesthetic issues affecting human habitats and land use.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

HORTICULTURE - ENVIRONMENTAL OPTION (121 HOURS)

First Year

First Term

<table>
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<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biol 120 or 106 [B] (GER)</td>
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</tr>
<tr>
<td>Chem 101 [P] or 105 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
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Second Term

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<tr>
<td>Chem 102 [P] or 106 [P] (GER)</td>
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<td>GenEd 110 [A] or 111 [A] (GER)</td>
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<td>Hort 202</td>
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<tr>
<td>Math Proficiency [N] (GER)</td>
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Second Year

First Term

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<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>ComSt 102 [C] or H D 205 [C] (GER)</td>
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</tr>
<tr>
<td>Hort 231</td>
<td>3</td>
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<tr>
<td>Hort 334</td>
<td>3</td>
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<td>Soils 201</td>
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Second Term

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<thead>
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<th>Course</th>
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<tbody>
<tr>
<td>Elective</td>
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<td>Hort Emphasis</td>
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<tr>
<td>Hort 251</td>
<td>4</td>
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<tr>
<td>Intercultural Studies [L,G,K] (GER)</td>
<td>3</td>
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<tr>
<td>Complete Writing Portfolio</td>
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Third Year

Year 2, Summer Session: Hort 399

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<td>Year 2, Summer Session: Hort 399</td>
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Third Year

First Term

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<th>Course</th>
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<tr>
<td>Adv. Plant Sci. Elective</td>
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<tr>
<td>Computer Literacy</td>
<td>3</td>
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<td>Hort Core</td>
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<td>Hort Emphasis</td>
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<td>Hort 356</td>
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<td>IPM Elective</td>
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Second Term

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<td>Entom 340 or Entom 348/9</td>
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<td>Hort Core</td>
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<td>Pl P 429 or 331</td>
<td>3</td>
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<tr>
<td>Social Science [S,K] (GER)</td>
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<td>Soils Elective</td>
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Fourth Year

First Term

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<td>Adv. Plant Sci. Elective</td>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
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<tr>
<td>Env. Hort Core</td>
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<tr>
<td>Env. Hort Emphasis</td>
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<td>Supporting Hort Elective</td>
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Second Term

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<td>3 or 4</td>
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<tr>
<td>Hort 334</td>
<td>3</td>
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<tr>
<td>Soils 201</td>
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Second Year

First Term

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<th>Course</th>
<th>Hours</th>
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<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
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<tr>
<td>Chem 345</td>
<td>4</td>
</tr>
<tr>
<td>Hort 310 and 311; 313; or 320 and 321</td>
<td>3 or 4</td>
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<tr>
<td>Hort 334</td>
<td>3</td>
</tr>
<tr>
<td>Soils 201</td>
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Second Term

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Biol 320</td>
<td>4</td>
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<tr>
<td>EconS 102 [S] (GER)</td>
<td>3</td>
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<tr>
<td>Hort 251</td>
<td>4</td>
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<tr>
<td>Math Proficiency [N] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Complete Writing Portfolio</td>
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Third Year

Year 2, Summer Session: Hort 399

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Year 2, Summer Session: Hort 399</td>
<td>3</td>
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Third Year

First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Hort 310 and 311; 313; or 320 and 321</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Hort 356</td>
<td>1</td>
</tr>
<tr>
<td>Hort Elective</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural Studies [L,G,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Pl P 429</td>
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</tr>
</tbody>
</table>

Footnotes

1 Environmental Horticulture Emphasis (12 hours); select a focus area in consultation with a faculty advisor from: Design: LA 101, 202, 260, and 264.
Business: Acctg 230, Mktg 360, Ag Ec 330, and 350.
Science: Chem 345, MBiS 303, and Stat 412.
2 Advanced Plant Science Electives (9 hours) and must include 3 hours of [M]: Hort 416, 418 [M], Biol 320, 332, 419, or 462.
3 Environmental Landscape Architecture (12 hours): Hort 331, 332, 333, 340, 439, or LA 264.
4 Supporting Horticulture Elective (3 hours): Hort 310, 313, or 320.
Horticulture and Landscape Architecture

**Fourth Year**

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Hort 310 and 311; 313; or 320 and 321</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Hort 418 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Tier III Course [T] (GER)</td>
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<tr>
<td>Elective</td>
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<tr>
<th>Second Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Hort 416</td>
<td>3</td>
</tr>
<tr>
<td>Hort 425 [M]</td>
<td>3</td>
</tr>
<tr>
<td>IPM Elective</td>
<td>2 or 3</td>
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<tr>
<td>Electives</td>
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**LANDSCAPE ARCHITECTURE (FIVE-YEAR DEGREE) (151 HOURS)**

The professional five-year course of study is divided into two segments. These are pre-landscape architecture and the third- through fifth-year professional landscape architecture program (BLA). Completion of the five-year program totaling 154 credits leads to the degree of Bachelor of Landscape Architecture and allows the graduate to enter the profession. At least three additional years of professional experience and successful completion of the landscape architectural license examination are necessary for registration as a licensed landscape architect in most states.

- Pre-landscape architecture (pre-LA) is a two-year, nondegree course of study that is intended to prepare undergraduate students for the advanced professional curriculum in the upper division. The pre-LA curriculum concentrates on General Education Requirements (GERs) and basic professional courses. General Education Requirement (GER) courses should be selected with the assistance of a landscape architecture advisor.
- The completion of pre-LA prepares the student to make application to the professional major in landscape architecture or entry-level technical positions in various landscape industries. Transfer students who have not completed the equivalent of the pre-LA course work will be accepted directly into pre-LA.
- To be admitted to the major of landscape architecture, the student should have completed the pre-LA curriculum and submitted an application. Application forms and instructions are available from the Admissions Office and the Department of Horticulture and Landscape Architecture Office.
- Applications to the professional program must be submitted prior to April 1. Due to limitations of space, faculty, and budget, admission can be granted to only the most qualified students based on experience, demonstrated abilities, motivation, and academic performance. The following courses (or approved equivalents) must be completed with a grade of C or better for students to be admitted into the professional program: Biol 120, Hort 231, 232, I A 101, 102, 260, 262, 263, 365.
- Transfer students who have completed the equivalent of the pre-LA curriculum may apply to the professional program. The entire fourth year of the program is conducted at the Interdisciplinary Design Institute on the WSU Spokane campus. Students may choose to complete their fifth year in Spokane or Pullman.

**First Year**

<table>
<thead>
<tr>
<th>First Term</th>
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<tbody>
<tr>
<td>Biol 120 [B] (GER)</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<td>Math Proficiency [N] (GER)</td>
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<td>Chem 101 [P] (GER)</td>
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<td>Communication Proficiency [C,W] (GER)</td>
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<tr>
<td>F A 101 [H], 201 [H], or 202 [H] (GER)</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>L A 202</td>
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**Second Year**

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<tr>
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<tr>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>L A 101</td>
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<tr>
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<td>L A 262</td>
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<tbody>
<tr>
<td>Graphics Elective</td>
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<td>Hort 232</td>
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<td>L A 102</td>
<td>3</td>
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<tr>
<td>L A 263</td>
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<td>L A 365</td>
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**Third Year**

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<tr>
<td>Biol 372, 462, NATRS 300, or L A 380</td>
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<tr>
<td>Hort 331</td>
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<td>L A 362</td>
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<td>L A 366</td>
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<td>Soils 201</td>
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<tbody>
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<td>AgTM 346</td>
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<td>L A 367</td>
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<td>Social Sciences [S,K] (GER)</td>
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<td>Soils 374</td>
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<tr>
<td>L A 425</td>
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<tr>
<td>L A 460</td>
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<td>L A 467</td>
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<td>L A 480</td>
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<td>L A 450 [M]</td>
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<tr>
<td>L A 470</td>
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<td>L A 475</td>
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<td>Social Sciences [S,K] (GER)</td>
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**Fifth Year**

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<tr>
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<td>Electives¹</td>
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<td>L A 486 [M]</td>
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<tr>
<td>Tier III Course (GER)</td>
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<tr>
<td>Electives¹</td>
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Footnotes

¹ Students will select two specialization options of 9 credits each from the following: Business, Horticulture/Plant Science, Natural Resources/Ecology, Urban Design, Public Policy/Planning, Computer Applications, Self-Directed.
Minors

Horticulture

A minimum of 16 hours in Hort is required, of which at least 9 hours must be in 300-400-level courses excluding Hort 399 and 499 and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Hort/CropS 202 and 251 are highly recommended. All pass, fail enrollments, and up to 2 credits of Hort 499, must be approved by the department chair.

Description of Courses

Horticulture Courses

Hort

102 Cultivated Plants 3 Production strategies, innovative research, utilization and processing techniques of Washington's major agronomic and horticultural crops.

113 Vines and Wines 3 Same as FSHN 113.

150 [Q] Plants and Society 3 (2-3) Plant production systems are used to explore and understand the interrelationships between living systems, the environment, and modern civilization.

202 Crop Growth and Development 4 (3-3) Rec Hort 102; Biol 106, 107, or 120. Morphology, anatomy, growth and development of agronomic and horticultural crops.

231 Landscape Plant Materials I 3 (2-3) Prereq Biol 120 or Hort 202. Rec either Biol 120 or Hort 202. Characteristics, ecology, nomenclature, identification, selection, and use of important woody and herbaceous landscape plant species.

232 Landscape Plant Materials II 3 (2-3) Rec Biol 120 or Hort 202. Continuation of Hort 231.

251 Plant Propagation 4 (3-3) Prereq Biol 107, Biol 120, or Hort 202. Principles and methods of multiplying herbaceous and woody plants and their handling up to useable size. Field trip required.

310 Pomology 3 Prereq biological or plant science course. History, botany, cultivation and uses of temperate-zone tree fruits. Cooperative course taught by WSU, open to UI students (PlSc 310).

311 Pomology Laboratory 1 (0-3) Prereq c//. in Hort 310. Practicum in the botany, cultivation an uses of temperate-zone tree fruits. Field trip required. Cooperative course taught by WSU; open to UI students (PlSc 311).

313 Viticulture and Small Fruits 3 Prereq biological science, botany, plant science course, or Hort/CropS 202. Botanical relationships, plant characteristics, fruiting habits, location, culture, marketing, and utilization of grapes, berries, and other small or bush fruits. Field trip required.

317 Golf Course Management 1 Prereq CropS 301. Same as CropS 317.

319 Introductory Plant Physiology Laboratory 1 (0-3) Prereq Biol 106 or 120; organic chemistry or c//; Biol 318 or c//. Same as Biol 319.

320 Olericulture 3 Prereq Hort 202. Rec plant science course or Soils 201. Science, business, and art of vegetable crop production; culture, fertility, growth, physiology, handling, marketing; garden, commercial, greenhouse, tropical, specialty vegetables. Cooperative course taught by WSU, open to UI students (PlSc 320).

321 Olericulture Laboratory 1 (0-3) Prereq c// in Hort 320. Production principles and practices of vegetable crops: plant characteristics, cultivars, nutrition, growth, and development. Field trip required. Cooperative course taught by WSU, open to UI students (PlSc 321).

322 Fruit and Vegetable Harvesting and Processing Technology 3 (2-3) Prereq Math GER. Technologies for harvesting, handling, storing, processing, and packaging of value-added fruit and vegetable products. Field trip required.

325 Plant Biotechnology 3 Prereq Biol 120, 301. Same as Biol 325.

326 Vineyard and Winery Equipment Systems 3 (2-3) Prereq Hort 313. Overview of machinery systems used in vineyards and wineries. Field trip required.

331 Landscape Plant Installation and Management 3 (2-3) Prereq Biol 120, Hort 202, 231, or 232. Principles and practices for installation and management of interior and exterior landscapes; specifications, site preparation transplanting, growth control, problem diagnosis.

332 Interior Plantscaping 2 Prereq biological or plant science course or by permission. Design, selection, installation, management, and maintenance of plantings within buildings; effects of interior plants on people and the environment.

334 Controlled Environments for Horticultural Production 3 Prereq Hort 202. Principles and practices for modifying environmental factors for horticultural production in controlled environments; methods for environmental measurements. Field trip required. Cooperative course taught by WSU, open to UI students (PlSc 234).

340 Nursery Management 3 Management of commercial nurseries from plant propagation through sale of plants. Field trip required. Cooperative course taught by U! (PlSc 340), open to WSU students.

341 Nursery Management Laboratory 1 (0-3) Lab study relevant to Hort 340. Experiments on and demonstrations of different practices within nurseries. Field trip required. Cooperative course taught by WSU, open to UI students (PlSc 341).

346 Landscape Irrigation Systems 3 (2-3) System component selection; layout, installation, operation of irrigation systems for turf and landscape plantings; basic system hydraulics; efficient water use.

356 Preparation for Entering the Horticulture Profession 1 Prereq junior in horticulture. Resume writing; job applications; interviewing; investigation of job opportunities; contact with employers; internship reports; practice in oral communication.

399 Professional Work Experience V 1-4 May be repeated for credit, cumulative maximum 8 hours. Prereq basic horticulture. By interview only. Planned and supervised work experience. F, grading.

409 Seminar in Viticulture and Enology 1 Current topics and recent developments in the field of viticulture and enology.

413 Advanced Viticulture 3 Prereq Biol 120; Biol 320; Hort 313; Chem 345; Soils 201; senior standing. Rec Stat 212 or 412. Wine and juice grape production in eastern Washington; wine and fruit physiology, climate and soils, and fruit quality.

416 Advanced Horticultural Crop Physiology 3 Prereq Biol 320. Physiological processes related to growth, development, and productivity of horticultural crops; advances in recombinant DNA technology; the impact on horticultural practices. Credit not granted for both Hort 416 and 516.

418 [M] Post-harvest Biology and Technology 3 (2-3) Prereq Biol 320; Hort 202. Physical and physiological basis for handling and storage practices; perishable organ ontogeny and physiological disorders; post-harvest environment requirements. Field trip required. Credit not granted for both Hort 418 and 518. Cooperative course taught by WSU, open to UI students (PlSc 418).

421 [M] Fruit Crops Management 3 Prereq woody horticultural crop production, a plant physiology course. Management strategies for the efficient production and marketing of temperate-zone fruit crops. Credit not granted for both Hort 421 and 521.


435 Chemistry and Biochemistry of Fruit and Wine 3 Prereq Biol 320; MBioS 303; rec analytical chemistry. Study of the chemistry and biochemistry of fruits; biochemistry and physiology of individual fruit compounds, aspects of processing including winemaking. Credit not granted for both Hort 435 and 535.

438 Ornamental Plant Production 1 3 (2-3) Prereq Hort 234. Fall and winter production practices of greenhouse and nursery crops. Field trip required. Credit not granted for both Hort 438 and 538. Cooperative course taught by WSU, open to UI students (PlSc 430).
439 Ornamental Plant Production 4 (3-2) Rec Hor 334. Production requirements for spring greenhouse crops; garden center management considerations. Credit not granted for both Hort 439 and 539. Cooperative course taught by WSU, open to UI students (PlSc 431).


445 [M] Plant Breeding II 2 Prereq Crops/Hort 444 or MbioS 301. Same as CropS 445.

490 Potato Science 3 History, botanical characteristics, seed physiology and production, plant population, physiology of growth, and pest management; factors influencing maturation, harvest, yield, grade, bruise control, storage, and quality maintenance; economics of production and research on a global basis. Credit not granted for both Hort 490 and 590. Cooperative course taught by UI (PlSc 590), open to WSU students.

495 Research Experience V 1-4 May be repeated for credit; cumulative maximum 12 hours. Same as CropS 495.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

503 Advanced Topics in Horticulture V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq Biol 320. Current topics and research techniques in horticulture.

509 Seminar 1 May be repeated for credit; cumulative maximum 4 hours. Continuous enrollment required for regularly enrolled graduate students in horticulture. Recent developments in horticulture. S, F grading.

510 Graduate Seminar 1 May be repeated for credit; cumulative maximum 4 hours. Literature reviews and research progress reports.

513 Advanced Viticulture 3 Prereq Biol 120; Hort 313; Chem 345; SoilS 201; Bio I 320. Rec Stats 212 or 412. Graduate-level counterpart of Hort 413; additional requirements. Credit not granted for both Hort 413 and 513.

515 Seminar in Molecular Plant Sciences 1 Same as MPS 515.

516 Advanced Horticultural Crop Physiology 3 Prereq Biol 320. Graduate-level counterpart of Hort 416; additional requirements. Credit not granted for both Hort 416 and 516.

518 Post-Harvest Biology and Technology 3 (2-3) Prereq Biol 320; Hort 202; graduate standing. Graduate-level counterpart of Hort 418; additional requirements. Credit not granted for both Hort 418 and 518. Cooperative course taught by WSU, open to UI students (PlSc 518).

521 Fruit Crops Management 3 Prereq woody horticultural crop production, a plant physiology course. Graduate-level counterpart of Hort 421; additional requirements. Credit not granted for both Hort 421 and 521.

533 Plant Tissue, Cell, and Organ Culture 3 (1-6) Prereq senior standing. By interview only. Current plant tissue techniques used in research and industry to solve problems. Cooperative course taught jointly by WSU and UI (PlSc 533).

535 Chemistry and Biochemistry of Fruit and Wine 3 Prereq Biol 320; MbioS 303; MbioS 305; rec analytical chemistry. Graduate-level counterpart of Hort 435; additional requirements. Credit not granted for both Hort 435 and 535.

539 Ornamental Plant Production 4 (3-2) Rec Hort 334. Graduate-level counterpart of Hort 439; additional requirements. Credit not granted for both Hort 439 and 539. Cooperative course taught by WSU, open to UI students (PlSc 531).

590 Potato Science 3 Graduate-level counterpart of Hort 490; additional requirements. Credit not granted for both Hort 490 and 590. Cooperative course taught by UI (PlSc 590), open to WSU students.

600 Special Projects or Independent Study 1 (0-2) May be repeated for credit; cumulative maximum 12 hours. Same as CropS 600.

700 Master’s Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

L A

101 Landscape Architecture Graphics 3 (1-6) Basic mechanical and freehand drawing; use of various drafting media, two- and three-D drawing, lettering, and rendering techniques.

102 Introduction to Computer Graphics in Landscape Architecture 3 (2-3) Use of digital media applied to analysis, drafting and rendering techniques; introduction to Photoshop, AutoCAD, and Illustrator.

202 [H] The Built Environment 3 Same as Arch 202.

222 Landscape Architecture Field Experience I 1 (0-2) May be repeated for credit; cumulative maximum 2 hours. Field trip required. Prereq sophomore standing. Field study of landscapes, designers and design firms through travel experiences.

260 History of Landscape Architecture 4 (3-3) Historical development in the practice and profession of landscape architecture throughout the world, circa BC to present. Cooperative course taught jointly by WSU and UI (Larc 389).

262 Landscape Architectural Design I 3 (2-3) Prereq Arch 102 or L A 101. Basic design principles and design processes at local regional scales; integration of design graphics and verbal/visual presentations. Field trip required.

263 Landscape Architectural Design II 3 (0-6) Prereq L A 262. Basic design and graphic techniques related to solving of elementary design problems.

264 Basic Landscape Design 3 For nonmajors. Design theory and principles; site design factors; design process application; construction criteria; graphic construction communication; landform; circulation systems; plant uses.

327 Theory in Landscape Architecture 3 Prereq L A 263; certified major in landscape architecture. Theories and frameworks that inform and emerge from the practices and outcomes of landscape architecture.

333 Landscape Architecture Field Experience I 1 (0-2) May be repeated for credit; cumulative maximum 2 hours. Field trip required. Prereq junior standing. Field study of landscapes, designers and design firms through travel experiences.

362 Landscape Architectural Design III 4 (2-6) Prereq L A 263. Professional site design processes; concentration on planting and site planning, design with urban community, ecological, and open-space projects.

363 Landscape Architectural Design IV 4 (2-6) Prereq L A 362. Professional site design processes; concentration on recreation facilities and site planning within residential, urban, institutional, and regional projects.

365 Landscape Architectural Construction I 4 (2-6) Prereq L A 262. Basic site planning and construction operations including grading, drainage, storm water management, and construction document techniques.


380 Ecological Applications in Design 3 (2-3) Prereq L A 263. Fundamental concepts of ecology as a philosophy and a science; emphasis on community, landscape restoration, and historical ecology as they relate to design. Field trip required.

399 Professional Work Experience: Office Practice 1 or 2 May be repeated for credit; cumulative maximum 4 hours. Prereq L A 263. Planned professional work experience in design and office practice as approved by faculty; written report and presentation to faculty required. S, F grading.

425 Issues in Landscape Evolution and Design Theory 3 Prereq L A 363. Investigation of historical relationships between humans and environment; exploration of major theoretical approaches to design, planning, and management of landscapes.
450 [M] Principles and Practice of Planning
3 Prereq L A 363. History, theory, methods, and processes in regional planning; contemporary issues and professional practice.

460 Interdisciplinary Design Studio 5 (2-6)
Prereq L A 363. Interdisciplinary design/problem solving in an urban environment; collaboration with students in other design professions; real-world, service-based learning problems.

467 Regional Landscape Inventory and Analysis 1-4 (2-6) May be repeated for credit; cumulative maximum 6 hours. Prereq Biol 120; Geol 101 or SoILs 201. Application of ecological planning process for landscape inventory and analysis.

470 Landscape Architectural Design V 4 (1-9)
Prereq L A 363. Advanced group and individual landscape architectural design and planning projects; professional applications of site design theory and design processes.

475 Senior Project Proposal 2 Prereq L A 363.
Program planning for senior project. S, F grading.

477 Landscape Applications of Geographic Information Systems 3 (1-6) Prereq L A 467. GIS-based spatial data development and analysis skills in an applied, real-world context.

480 Professional Practice 2 Prereq L A 363. Current office practices, design and construction management techniques; introduction to construction contract legal requirements within the practice of landscape architecture. Cooperative course taught jointly by WSU and UI (LA 358).

485 [M] Senior Creative Project I 4 (0-8)
Prereq L A 425. Individually developed studio or scholarly project conducted with faculty advisor; collection, analysis, and interpretation of project information.

486 [M] Senior Creative Project II 4 (0-8)
Prereq L A 485. Individually developed studio or scholarly project conducted with faculty advisor; synthesis of information, solution development, and documentation.

491 Topics in Design 3 Prereq L A 263.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

520 The Northern Rocky Mountain Regional Landscape 4 (2-4) Prereq graduate standing. Biophysical characteristics of the Northern Rocky Mountain regional landscape.

521 Cultural Interpretation of the Regional Landscape 4 (2-4) Prereq graduate standing. Cultural characteristics of the Northern Rocky Mountain regional landscape.

525 Landscape Modeling 3 (1-6) Prereq L A 477. Visual and cartographic landscape modeling through application of GIS and visualization technologies to landscape changes.

530 Philosophies and Theories of the Built Environment 3 Prereq graduate standing in Arch/I D/L A. Same as Arch 530.

540 Research Methods 3 Same as Arch 540.

550 Design Applications 2 Prereq Arch/I D/L A 530. Same as Arch 550.

560 Interdisciplinary Seminar 3 Prereq graduate standing. Same as Arch 560.

561 Interdisciplinary Seminar II 3 Prereq Arch/I D/L A 560. Same as Arch 561.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable Credit. Variable Credit S, F grading.

School of Hospitality Business Management

www.business.wsu.edu/hospitality

Todd Hall Addition 470
509-335-5766

Taco Bell Distinguished Professor and Director W. T. Umbricht; E. Haglund Distinguished Professor, D. Reynolds; Associate Professors, D. Garsoy, K. Kendall, M.C. Paxson, N. Swanger; Assistant Professors, C. Chi, H. J. Kim; Culinary Educator, J. Harbour; Catering Services Manager, J. Callison; Academic Coordinator and Instructor, K. Bennett; Instructor, W. Maynard; Professors Emeriti, P. Diaz, L. Kreck, D. Rutherford, D. Smith.

The school provides specialized instruction dealing with the major organizational, managerial, financial, and technical issues relative to hospitality and tourism operations of hospitality businesses. The school prepares graduates for managerial responsibilities in hospitality and tourism operations both here and abroad. The curriculum provides a sound business education on the fundamental features of operating hotels, restaurants, clubs, and managed service operations. It includes courses in general education, business, and hospitality management. The program of study leads to a degree of Bachelor of Arts in Hospitality Business Management.

The School of Hospitality Business Management will produce graduates who:
1. Understand and apply concepts of hospitality business management.
2. Have effective oral and written communication skills.
3. Address issues critically and reflectively.
4. Work efficiently and effectively with others.
5. Have ethical leadership skills.
6. Understand and practice world-class service.
7. Possess and apply a global perspective.
8. Acknowledge and respect persons from diverse cultures and backgrounds.
10. Are technologically competent and resourceful.

Transfer Students
A student planning to transfer to hospitality business management must complete 50% of their course work outside of the College of Business and Economics. Nine hours of economics and four hours of MgtOp 215 are counted as outside of the CBE to meet this 50% rule.

Residence Requirements: 1) At least 50% of business core and major specialization course requirements must be taken at WSU; 2) At least nine 300-400-level business, economics, or hospitality courses must be taken in residence at WSU; and 3) The last 30 hours of course work must be taken at WSU.

Transfer, correspondence, and independent study credit (within university limits on these credits) may count toward the 120 hours required for the degree and/or satisfy requirements other than major courses.

Only general elective courses that are not GERs, not core/major requirements, and not a course offered by the CBE may be taken pass, fail. An honors senior project is required for Honors students.

First Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>EconS 101 [S] or EconS 102 [S] (GER)</td>
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</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>HBM 131</td>
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<tr>
<td>Science [B,P,Q] (GER)</td>
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Second Year

<table>
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<tr>
<th>Course</th>
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<tr>
<td>EconS 101 [S] or EconS 102 [S] (GER)</td>
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<tr>
<td>HBM 158</td>
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<tr>
<td>HBM 182</td>
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<tr>
<td>Math 201</td>
<td>3</td>
</tr>
<tr>
<td>MIS 250</td>
<td>3</td>
</tr>
<tr>
<td>Oral Com [C] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

HOSPITALITY BUSINESS MANAGEMENT

(120 HOURS)

To be eligible for certification as a major in hospitality business management, students must have earned at least 60 semester hour of credit and completed the following certification courses with a GPA of 2.50 or higher: Acctg 230, 231; B Law 210; MgtOp 215; EconS 101, 102; Engl 101; Math 201, Math 202 or 205; MIS 250, and have a WSU cumulative GPA of 2.5. All students must apply for certification on-line. Students will also be ranked based on space availability and academic performance. Students are eligible to petition for consideration of alternative criteria.

All students majoring in hospitality business management must complete 50% of their course work outside of the College of Business and Economics. Nine hours of economics and four hours of MgtOp 215 are counted as outside of the CBE to meet this 50% rule.

Transfer, correspondence, and independent study credit (within university limits on these credits) may count toward the 120 hours required for the degree and/or satisfy requirements other than major courses.

Only general elective courses that are not GERs, not core/major requirements, and not a course offered by the CBE may be taken pass, fail. An honors senior project is required for Honors students.
Hospitality Business Management Courses

**Hospitality Business Management Courses**

**HBM**

131 *Introduction to Hospitality Business Management* 3 (181) Historical development and organizational structure of the hospitality service industries. Cooperative course taught by WSU, open to UI students (RcMgt/Rec 181).

158 *Basic Restaurant Operations and Service* 3 Prereq HBM 131. General restaurant operating concepts, dining room service procedures and food safety; sanitation principles.

182 *Introduction to Industry Experience* 1 Preparation for work in hospitality/business organizations; resume writing, interview skills, use of Career Services, career dress.

201 *Quantity Food Production* 3 Principles of menu writing, sanitation and food preparation applied to management of quantity food production and service.

235 *Travel, Society and Business* 3 Underlying principles and practices in domestic tourism. Cooperative course taught by WSU, open to UI students (RRT 236/Rec 235).

258 *Fundamentals of Cooking and Dining Room Service* 2 (1-3) Practical applications of cooking techniques, dining room service, and restaurant operations including safety, sanitation, flow of goods and industry trends.

275 *Special Topics* V 1-15 May be repeated for credit. S, F grading.

280 *Lodging Systems and Procedures* 3 Management functions relating to the planning and operational policies of various hotel departments.

284 *Managed Services* 3 Management systems of the segment of the hospitality industry relating to contract and self-operated management companies.

298 *Internship Experience* V 3-12 May be repeated for credit; cumulative maximum 12 hours. Prereq HBM 131. Cooperative educational internship with a hospitality business, government or non-profit organization. S, F grading.

301 *Introduction to Conventions and Meetings Industry* 3 Prereq junior standing. Overview of industry, including components, interrelationships, economics and theory.

310 *Hospitality Industry Financial Control* 3 Prereq Acctg 231; junior standing. International control through financial and accounting systems for hotels and restaurants.


Footnotes

1 For a total of 7 hours of Biological and Physical Sciences.

**Hospitality Business Management**

To be eligible to certify in the hospitality business management minor, students must have a cumulative GPA of 2.5. A minor in hospitality business management requires at least 16 hours of credit, 9 of which must be 300-400-level, with an overall GPA of at least 2.5 in the required courses. Courses for the minors may not be taken pass, fail. A total of 6 hours of transfer work may be counted toward the minor requirements for courses at the 100- or 200-level only. All other course work for the minor must be WSU course work.
580 Hospitality Services Marketing 3 Prereq Mktg 505. Services marketing concepts and principles applied to hospitality organizations; strategies to market services and control quality.

581 Services Management 3 Prereq enrollment in the MBA program. Design and management of service systems in hospitality operations; control of customer interaction, personnel activities and inventory.

587 Special Topics 3 Strategic business policy, concepts, and practices in hospitality management.

600 Special Projects or Independent Study Variable credit, S, F grading.

Department of Human Development

www.hd.wsu.edu
Johnson Tower 501
509-335-8439


Students seeking a bachelor of arts degree in this department focus on human development across the lifespan as it occurs within the family, linked to a variety of contexts within communities. The program centers on understanding the complexity of physical, social, cognitive, and emotional development with an emphasis on development within the family. The curriculum examines human and family development across the lifespan (i.e., child, adolescent, younger and older adults). Opportunities are also available to become state certified as a teacher in preschool to third grade or as a family and consumer sciences teacher in junior high or senior high school.

In addition to the teaching certifications, the department offers four certificates: early childhood, adolescence, gerontology, and family studies. Students choosing these certificates are prepared to work in a wide range of careers working with children, adolescents, older adults, and/or families in a variety of professional settings. These may include positions in foster parent programs, adoption agencies, childcare or Head Start programs, teen centers, juvenile justice programs, nursing homes or other community-based programs for the elderly, and family services agencies.

We expect our graduating students will demonstrate: 1) an understanding of social, emotional, cognitive, and physical development across the lifespan in the family context; 2) an understanding of how contextual systems interact to influence family and individual development; 3) the ability to critically select, evaluate, and utilize information to understand and benefit individuals and families; 4) writing, listening, and speaking appropriate for human development related occupations; 5) application of human development knowledge and skills in professional settings.

Students completing a human development degree are required to complete a certified minor or approved certificate of study in another department. A minor or certificate of study should be selected in consultation with a human development faculty advisor, preferably by the end of the third semester.
### Third Year

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
<th>Courses</th>
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<tbody>
<tr>
<td><strong>First</strong></td>
<td></td>
<td><strong>Second Term Hours</strong></td>
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<tr>
<td>H D 410 [M]</td>
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<td>Biological Sciences [B] (GER)</td>
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<tr>
<td>T &amp; L 467</td>
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<td>Social Science [S,K] (GER)</td>
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<tr>
<td>T &amp; L 469</td>
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<td>Math Proficiency (GER)</td>
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<tr>
<td>T &amp; L 470</td>
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<td>Electives</td>
</tr>
<tr>
<td>Tier III Course [T] (GER)</td>
<td>3</td>
<td>Complete Writing Portfolio</td>
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<tr>
<td><strong>Second</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H D 406[1]</td>
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<td>Tier III Course [T] (GER)</td>
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<tr>
<td>H D 480[1]</td>
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<td>Elective</td>
</tr>
<tr>
<td>T &amp; L 464</td>
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<td>Minor Elective[1]</td>
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<td>T &amp; L 465</td>
<td>3</td>
<td>H D Elective</td>
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<tr>
<td>T &amp; L 466</td>
<td>2</td>
<td>H D Elective</td>
</tr>
</tbody>
</table>

**Footnotes**

1 Courses are only offered during this semester each year.
2 Select two from: AMT 211, 216, 317.
3 Econ 101 [S] or 102 [S] strongly recommended.

**HUMAN DEVELOPMENT - GENERAL OPTION (123 HOURS)**

The Bachelor of Arts degree in Human Development requires a cumulative GPA of 2.5 or better and a C minimum grade in all H D courses, including substitutions. Of the 42 hours required for the major, a minimum of 21 must be taken in residence at WSU.

**First Year**

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
<th>Courses</th>
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<tr>
<td><strong>First</strong></td>
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<td><strong>First Term Hours</strong></td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<td>GenEd 110 [A] (GER)</td>
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<td>Mus 153 [H] (GER)</td>
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</table>

**Footnotes**

1 Courses are only offered during this semester each year.
2 Select two from: AMT 211, 216, 317.
3 Econ 101 [S] or 102 [S] strongly recommended.

**HUMAN DEVELOPMENT - PRESCHOOL THROUGH THIRD GRADE (P-3) CERTIFICATION OPTION (132 HOURS)**

Teaching Certificate Program - Students majoring in human development may choose to become certified in the state of Washington to teach in preschool through third grade (P-3), and kindergarten through eighth grade (K-8), or family and consumer sciences. They must fulfill course requirements specified by the state of Washington. Note that the certification programs available in human development are offered in conjunction with the WSU College of Education. Additionally, those teacher certification students who wish to have a supporting endorsement from the Department of Human Development must meet with the appropriate human development advisor to obtain the list of approved courses.

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
<th>Courses</th>
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<tbody>
<tr>
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<td></td>
<td><strong>First Term Hours</strong></td>
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<tr>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>T &amp; L 385</td>
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<tr>
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<td><strong>Second</strong></td>
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<tr>
<td>H D 410</td>
<td>3</td>
<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>H D 449</td>
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<td>Sp Ed 409</td>
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<td><strong>Fourth</strong></td>
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<td>H D 446[1]</td>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>T &amp; L 385</td>
<td>3</td>
<td>EdPsy 468</td>
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<tr>
<td>T &amp; L 413</td>
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<td><strong>Fifth</strong></td>
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<tr>
<td>T &amp; L 415 (Directed Teaching)</td>
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<td>Tier III Course [T] (GER)</td>
</tr>
</tbody>
</table>
Footnotes
1 FSHN 130 [B] is strongly recommended.
2 Engl 201, H D 341, 342, and Math 251 must be completed prior to application for admission to the teacher certification program.
3 Courses are only offered during this semester each year.
4 During the freshman year, students must pass the Mus 388 competency exam or take Mus 153, qualify to enroll in Math 251, and begin the University Writing Portfolio.
5 H D 446 requires a half-day each day, 5 days a week for a semester and can be put into the schedule anytime after taking H D 342.

Minors

Aging
The Department of Human Development administers the Program in Aging. A minor in aging is available to all WSU undergraduate students, including human development majors. Students may opt to earn a Certificate in gerontology in conjunction with completing requirements for the Program in Aging (see Program in Aging). Refer to criteria outlined in the Program in Aging and contact Margaret Young at 335-9203 or email youngmg@mail.wsu.edu.

Early Childhood Education
A minor in early childhood education requires completion of H D 201, 202, 302, 341, 342, 449, and 482. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Students must achieve a cumulative GPA of 2.5 or better in courses used to fulfill requirements for the Early Childhood Education minor. Completion of this set of courses also provides a supporting endorsement in early childhood education for students completing a major in elementary education.

General Human Development
To minor in Human Development, students may select a developmental or a family focus. The minor requires 18 hours, 9 of which must be in 300-400-level courses taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. The minor in Human Development requires H D 101; H D 320 or 420; H D 201, 202, 203, or 408; H D 204, 301, 302, or 350; and 6 additional credit hours from any other 300-400-level H D courses. Students must achieve a cumulative GPA of 2.5 or better in courses used to fulfill requirements for the Human Development minor.

Certificates

Adolescence/Aging/Early Childhood Development and Care/Family Studies
The department of Human Development offers certificates in adolescence, aging, early childhood development and care, and family studies. Each certificate reflects a high standard of training and experience in a specific area of human development. Non-human development majors are required to complete any prerequisites for the internship requirement. The requirements for each include 6 hours in H D core courses that support the area of certification, 15 hours in required and optional courses and 4 hours of internship that reflect the area of certification. Students must maintain an overall GPA of 2.5 in those courses that count toward the certificate. For specific requirements in any of these certificates, contact the department of Human Development.

Description of Courses

Human Development Courses

H D
101 [S] Human Development Across the Lifespan 3 Overview of lifespan development from a psychosocial ecological perspective; individuals, families, organizations, and communities and their interrelationships.
201 Human Development - Prenatal Through Age 8 3 In-depth examination of growth and development from the prenatal period through age 8 in context of family, community and society.
202 Human Development - Middle Childhood Through Adolescence 3 Prereq H D 101 or 201. In-depth study of school-age child and adolescent; observation and volunteer experience; theories and their application.
203 Human Development: Adulthood Through the Older Years 3 In-depth study of individual development from young adulthood through later years within the social context of family and community.
205 [C] Communication in Human Relations 4 (3-2) Developing an understanding of human behavior and learning skills in communication and leadership.
275 Special Topics in Human Development: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. S, F grading.
300 Child Abuse and Neglect 3 Prereq 6 hours of social sciences. Overview of causes, identification, reporting, and treatment of children who are abused and/or neglected.
301 Family Stress and Coping 3 Prereq 6 hours of social sciences. Examination of the nature and course of family crisis, using a family systemic approach, including principles used in intervention strategies.
302 Parent-Child Relationships 3 Prereq 6 hours in social sciences. Parenting in contemporary society with focus on reciprocity of parent-child relationships and diversity of families.
304 Intimate Relationships Across the Life Span 3 Prereq 6 hours of social sciences. An examination and analysis of intimate relationships across the life span including friend, family, and partner relationships.
305 Gerontology 3 Prereq 6 hours of social sciences. Examination and analysis of social context of aging including public policy, implications of demographic shifts, and quality-of-life issues.
310 [M] Research Approaches to Human Development 3 Prereq 6 hours of H D; junior standing. Overview of research techniques in human development; methods of evaluating research products.
320 [M] Resource Management and Problem Solving 3 Prereq 6 hours of social science. Styles of managing material, human and environmental resources with families; various approaches to problem solving with individuals and families.
334 [S] Principles of Community Development 3 Prereq social science course, sophomore standing. Same as CRS 334.
340 Development in Context 3 Prereq 6 hours in social sciences. In-depth study of contextual influences (i.e., culture, place, family, school) on early years of human development; application of multi-cultural perspectives/practices.
341 Learning and Guidance in Early Childhood 3 Prereq H D 101, 201, or 340; 3 additional hours of social science. Theories of child guidance; understanding of child behavior; strategies and techniques for effective group and individual guidance of young children.
342 Curriculum for Early Childhood Programs 4 (3-3) Prereq H D 101, 201, or 340; 3 additional hours of social sciences; Rec H D 341 or 345. Planning and implementation of developmentally appropriate curriculum for use in programs serving young children.
345 Managing Behavior in Early Childhood Settings 3 Prereq 6 hours of social science. Principles and strategies for management of children’s individual and group behavior in early childhood settings; professional and ethical responsibilities.
346 Middle Childhood and School Age Care 3 Prereq 6 hours of social science. Understanding development in middle childhood (approximately 5-12 years); understanding and planning school age care programs.
350 [S,D] Diversity in Contemporary Families 3 Prereq 6 hours of social sciences. Preparation for students in human service professions to work with ethnic, cultural, economic, language, gender, religious and other types of diversity.
360 Death and Dying 3 Prereq 6 hours of social sciences. Death and dying throughout life and in different contexts; manner of death, grief, and legal and ethical considerations.

385 Perspectives in Human Services 3 Prereq 6 hours of Anth, H D, Psych or Soc. In-depth study of human service practice, theoretical perspectives and strategies for delivery of appropriate services to diverse clientele.

403 [T] Families in Poverty 3 Prereq 6 hours of social sciences; junior standing; completion of one Tier I and three Tier II courses. Examining poverty in US and globally; description of groups most often poor; identification of effective solutions and successful interventions.

406 Work and Family 3 Prereq 6 hours of social sciences. Issues related to work and family; workplace environments; fostering effective policy responses to family needs; role of workplace-family coordination. Credit not granted for both H D 406 and 506.

407 Student Teaching for Family and Consumer Sciences V 4-16 Prereq T & L 415 or c/c; make application and pay certification fees; complete all other coursework for degree and teacher certificate; receive fingerprinting clearance from Washington State Patrol, FBI, and Office of Professional Practices; maintain 2.5 GPA overall and in endorsement area and professional core courses. Placement by interview only. Supervised teaching in public schools, including seminars reflecting on effective teaching. S, F grading.

408 Advanced Adolescent Development 3 Prereq 6 hours of social sciences. In-depth examination of theories and research; developmental issues and prevention and intervention programs for school-aged child and adolescent.

409 Current Consumer Issues 3 Prereq 6 hours of social sciences. Analysis of the consumer role; ecological perspective; interaction of consumers, government, market; effects on communities, families, and individuals.

410 [M] Public Policy Issues Impacting Families and Individuals 3 Prereq 9 hours of social sciences; junior standing; strongly rec H D 310 and H D 420. Family policy issues in a changing society; ecological perspective; relationship of public policy to communities, organizations, families, and individuals.

412 Adult Development and Learning 3 Prereq 6 hours of social sciences. Understanding growth and change in adulthood with application of effective learning and teaching practices with adult populations.

420 [M] Application of Human Development Theories 3 Prereq 9 hours of social sciences; junior standing. In-depth examination of theories and their use in understanding individual development in context of family and community.

423 Fundamentals of Participatory Research 3 Prereq sophomore standing, two social science courses. Same as CRS 423. Credit not granted for both H D 423 and 523.

428 Housing America’s Families 3 Housing, furnishings, and equipment as they influence family well-being, and families’ housing choices as affected by social, psychological, economic, technological, and political factors. Cooperative course taught by UI (FCS 428), open to WSU students.

430 Professional Skills 3 H D 385; junior standing. Examination and development of skills important for effective professionals: communication, leadership, ethical behavior, cultural competence, grant writing, evaluation, and others.

446 Practicum in Early Childhood Programs V 3 (0-9) to 6 (0-18) May be repeated for credit; cumulative maximum 12 hours. Prereq H D 341 or 345; HD 342; placement by interview only. Teaching in department’s child development laboratory; emphasis on skill building in working with diverse groups and building partnerships with families.

464 Administration of Early Childhood Programs 3 Prereq 6 hours of social sciences. Organization, administration, and management of early childhood programs; finance, program development, service delivery, personnel concerns, resource development, and evaluation.

479 Planning and Evaluation in Human Development 3 Prereq 9 hours of H D. Design, implementation and evaluation of community/school programs; needs assessment; appropriate curriculum resource identification; outcomes development; includes individual and program evaluation.

480 Instructional Strategies in Human Development 3 Prereq 9 hours of H D. Identification and use of instructional strategies; evaluation of strategies to determine appropriate use and effectiveness with a variety of learners.

482 [M] Child Assessment and Evaluation 3 Prereq H D 201; 6 additional hours in H D. Understanding aspects of assessment and evaluation of young children; selection, administration, summary development, ethics and professional responsibilities, evaluation and follow-up.

485 Participation in Human Development Research V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 6 hours. Prereq 6 hours of social sciences. Supervised participation in faculty research including data collection, analysis, literature review, preparation of findings. S, F grading.

486 Special Topics in Human Development: Study Abroad V 1-15 Prereq 6 hours of social sciences. May be repeated for credit; cumulative maximum 15 hours. S, F grading.

487 Special Topics in Human Development V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq 6 hours of social sciences. Assessment and evaluation of families and children.

495 Instructional Practicum V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq H D 497. Opportunity to assist with instruction; experience in further study of topic, organization of material, grading, management of resources. S, F grading.

497 Professional Preparation 2 Prereq 12 hours in H D. Educational knowledge and personal skills/abilities matched to career; expanded knowledge of human development professions; professional self-presentation; professional/ethnic conduct.

498 Field Placement V 1 (0-3) to 8 (0-24) Prereq H D 385 or 497. Self-initiated, supervised work experience with appropriate private organizations, businesses, or government agencies; interaction with professionals in related fields. May be repeated for credit; cumulative maximum 8 hours.

499 Special Problems V 1-4 May be repeated for credit. Prereq by interview only. S, F grading.

511 Theory and Substance of Human Development I 3 Prereq graduate standing. Human development theories; application to life span development, cultural variations, resources, problem solving, interaction of families and individuals with other systems.

512 Theory and Substance of Human Development II 3 Prereq H D 511. Continuation of 511; theory and application to concepts and issues in human development.

513 Research Methods in Human Development I 3 Prereq graduate standing. Introduction to process of research and methods in human development; techniques of research, data collection, and data analysis procedures. Cooperative course taught by WSU, open to UI students (FCS 521).

514 Research Methods in Human Development II 3 Prereq H D 513. Integration of formal decision making into the social science research process; procedures appropriate for experimental, quasi-experimental and field research. Cooperative course taught by WSU, open to UI students (FCS 522).

520 Adolescence 3 Prereq graduate standing. In-depth examination of theories and research, developmental issues and prevention and intervention programs for school-aged children and adolescents.

523 Fundamentals of Participatory Research 3 Prereq graduate standing, two social science courses. Same as CRS 523. Graduate-level counterpart of H D 423; additional requirements. Credit not granted for both H D 423 and 523.

535 Program Development in Child and Family Studies 3 Prereq graduate standing. Analysis and development of program delivery systems, curricula and evaluation models. Cooperative course taught jointly by WSU and UI (FCS 554).
Human Development

540 Effective Intervention Programs
3 Prereq H D 530. Innovative effective prevention and intervention programs from theoretical, applied, and outcome evaluation perspectives.

550 Seminar on Family Relationships
3 Prereq graduate standing. Survey of family studies topics and issues examined from a research point of view.

558 Parent-Child Relationships
3 The reciprocal interactions among family members will be examined; theoretical perspectives and empirical findings will be explored in terms of implications for education and practice.

560 Seminar in Child Development
3 Prereq graduate standing. Survey of literature on selected areas in child development; discussion of research and application related to current issues and trends.

561 Advanced Curriculum for Early Childhood Programs
3 Opportunity to explore curriculum practices in early childhood education; discussion, evaluation and adaptation of curricula based on current research.

562 Administration and Leadership in Programs
3 Examining early childhood administrator role; analysis and application of research to administration, developing concrete skills necessary for successful administration.

580 Families, Community and Public Policy
3 Prereq H D 513, 514, or approved graduate research methods course. Analysis of family policy research; role of family policy research in public policy and knowledge building processes. Cooperative course taught by WSU, open to UI students (FCS 580).

586 Special Topics in Human Development
V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Assessment and evaluation of families and children.

595 Instructional Practicum
V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq senior standing. Supervised instructional practicum for departmental majors. S, F grading.

598 Professional Internship
3 Prereq H D 510. Supervised individual experiences with related organizations, businesses, or government agencies; opportunities for interaction with professionals in related fields. S, F grading.

600 Special Projects or Independent Study
Variable credit S, F grading.

700 Master's Research, Thesis, and/or Examination
Variable credit S, F grading.

Humanities

Libarts.wsu.edu/english
Avery 202
509-335-2851

Academic Coordinator, J. Smith.

The humanities curriculum consists of a series of interdisciplinary courses designed to introduce students to some of the basic concepts of civilization through the study of representative masterpieces of literature, music, art, and related fields. The courses numbered 101, 302, 303, and 304 provide a survey of western civilization from ancient times to the modern era. English majors may substitute Humanities courses for any literary elective requirement in their option.

Using Humanities courses as part of General Studies-Humanities Major

WSU-Pullman students who are interested in the interdisciplinary study of culture can use a number of the courses listed below as a minor concentration in a degree program in General Studies-Humanities. A recommended sequence would include at least three from Hum 101, 302, 303, 304, which provide students a survey of arts and thought from ancient times to the present. Any of the other humanities courses, including the study-abroad option, could be used as well.

Minors

Humanities

The humanities minor is particularly appropriate for communication students with international interests, foreign languages majors seeking to broaden their studies beyond their major language, and history and business majors with interests in international arts and literature. The student must complete a minimum of 18 hours in courses listed under “Humanities” of which at least half must be 300-400-level taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

Description of Courses

Humanities Courses

Hum

101 [H] Humanities in the Ancient World
3 Integrated humanities: literature, philosophy, history, and art of the ancient world.

103 [H] Mythology
3 The theory of mythology and use of myths in art, literature, and music; Greco-Roman and one other.

130 [H] Introduction to Foreign Literature
3 Same as For L 130.

131 [G] Masterpieces of Asian Literature
3 Same as Chin 131.

132 [H] Masterpieces of French/Francophone Literature in Translation
3 Same as Fren 130.

133 [H] Masterpieces of German Literature in Translation
3 Same as Ger 130.

134 [H] Masterpieces of Peninsular Spanish and Latin American Literature In Translation
3 Same as Span 130.

135 [H] Masterpieces of Russian Literature in Translation
3 Same as Rus 130.

198 [H] Humanities in the Ancient World: Honors
3 Integrated humanities; literature, philosophy, history, and art of the ancient world. Open only to students in the Honors College.

302 [H,M] Humanities in the Middle Ages and Renaissance
3 Integrated humanities; exploring great works and themes of the European Middle Ages and Renaissance, including art, architecture, music, philosophy, and literature.

303 [H,M] Reason, Romanticism, and Revolution
3 Integrated humanities; literature, philosophy, art, architecture, film, music since World War I; major works reflecting influential movements and concerns of the modern world.

335 [H] The Bible as Literature
3 Historical and literary approach to texts of the Jewish and Christian scriptures; emphasis on history, interpretation, and influence.

338 Topics in Humanities
3 May be repeated for credit; cumulative maximum 6 hours. Interdisciplinary, international topics in the humanities (art, architecture, music, literature, philosophy, film).

350 [G] Sacred Texts and Cultures of World Religions
3 Sacred and literary texts, spiritual practices, and cultural origins and values of world religious traditions from an intercultural perspective.

410 [T] Love in the Arts
3 Prereq completion of one Tier I and three Tier II courses; one college-level literature or art history course. Concepts of love around the world and in history through literature, art, music, dance, and theater.

450 [T] Representations of the Holocaust
3 Prereq completion of one Tier I and three Tier II courses. How the Holocaust is represented and enters public memory through documentaries, memoirs, works of fiction, poetry, film, museums and monuments.

499 Special Problems
V 1-4 May be repeated for credit. S, F grading.
Interdisciplinary Design

Description of Courses

Interdisciplinary University Courses Courses

Univ 100 /101 College Majors and Career Choice 1 Career development and the decision-making process; exploration of academic majors and careers.

300 College Major and Career Planning 1 Application of career development principles to development of professional opportunities; includes comprehensive career self-assessment and analysis of workplace trends.

490 McNair Preparation for Graduate School 1 May be repeated for credit; cumulative maximum 2 hours. Prereq junior standing. Preparation for McNair Scholars and others for graduate study. No credit earned toward degree; not qualified for financial aid. S, F grading.

590 Preparation for College Teaching 2 Prereq graduate standing/TA appointment. Cross-discipline instructional development for graduate teaching assistants; course development teaching techniques, university policies and procedures. S, F grading.

591 Interdisciplinary Studies 1 May be repeated for credit. Contemporary issues in interdisciplinary education and research. Open to all interested students.

597 Preparing the Future Professoriate 2 Prereq doctoral student standing. Understanding and contextual knowledge of the professoriate and issues facing higher education.

598 Interdisciplinary Seminar 1 May be repeated for credit; cumulative maximum 3 hours. Prereq Univ 591. Seminar on theory and practice of advanced interdisciplinary doctoral study.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. For Interdisciplinary PhD only. S, F grading.

Department of Interior Design

www.id.wsu.edu
Daggy 330
509-335-4118

Associate Professor and Chair, J. Turpin; Assistant Director and Clinical Associate Professor, L. Johnson; Professors, N. Blossom, J. Asher Thompson; Associate Professors, R. Krikac, J. McCoy; Assistant Professors, M. Melcher.

The interior design program is based on a concern for human beings and the creation of interior settings that support human activities and values. Graduates of the Program in Interior Design should be able to think creatively and solve problems in a professional manner. Above all, an interior design education helps the student to develop intellectual curiosity, allowing the graduate to continue to develop as a person and as a designer throughout life. Upon completion of the program, students are able to analyze information, evaluate issues, and set priorities while generating creative design solutions for projects of a complex scale.

The interior design program is the only baccalaureate program in Washington accredited by the Council for Interior Design Accreditation (formerly FIDER) and offers a Bachelor of Arts in Interior Design. The program provides the common body of knowledge related to interior design as recognized by CIDA. Beginning Fall 2000, qualified students may choose to enter an articulated B.A./M.A. degree program within the senior year that leads to a master's degree completed in the first year of graduate study.

All students are required to have a personal laptop computer prior to enrollment in upper-division studio courses. See www.id.wsu.edu for computer specification requirements.

Students complete their third and fourth years at WSU Spokane at the Interdisciplinary Design Institute. The institute represents a unique collaboration among the design disciplines with students and faculty from interior design, architecture, and landscape architecture working and learning together in a team-oriented, urban environment. As graduates, students have the ability to take the initiative, make critical judgments of their own designs, as well as others, and operate within a team context; all of which contributes to their future success as professionals.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.
I D 333
I D 350 [M] 3
I D 397 2

Fourth Year

First Term
Senior Year in Spokane
Arch 472 2
I D 425 5
I D 460 3
Supportive Electives 3 3
Tier III Course [T] (GER) 3

Second Term
I D 392 [M] 3
I D 415 5
I D 426 3
I D 490 or Supportive Elective4 3

Certification Requirements

Students wishing to certify into the Bachelor of Arts in Interior Design program must complete a minimum of 45 semester hours and receive a C or better in the following eight courses: I D 101, 102, 197, 201, 203, 205, 215, 297, or transfer equivalents as approved by the department. The successful completion of a portfolio review is required upon completion of I D 203 to become a certified major in Interior Design. The review is set up as an interview process between each student and a faculty panel. During the interview, students are expected to present completed projects and explain, defend, and justify their design solutions to the faculty.

First Year

First Term
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
I D 101 3
I D 197 3
Math Proficiency [N] (GER) 3

Second Term
GenEd 111 [A] (GER) 3
I D 102 3
I D 297 3
Intercultural Studies [L,G,K] (GER) 3
Tier I Science [B,P,Q] (GER) 4

Second Year

First Term
Communication Proficiency [C] (GER) 3
I D 201 4
I D 205 2
Physical Sciences [P] (GER) 3 or 4
Psych 105 [S] (GER) 3

Second Term
Biological Sciences [B] 3 or 4
F A 201 [H] or Arts & Humanities [H,G] (GER) 3
I D 202 3
I D 203 4
I D 215 3
Complete Writing Portfolio

Third Year

First Term
Junior Year in Spokane
I D 250 or 311 3
I D 321 5
I D 325 3
I D 396 3

Second Term
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
I D 312 [M] 2

Minors

Interior Design Studies

A minor in interior design studies shall be certified only by department approval and is limited to 10 students per year. Students must submit their intent to seek the minor in writing to the Interior Design Department. The department may restrict enrollment in any year based on its obligation to deliver the Bachelor of Arts program. A minor in interior design is not an avenue for professional certification nor is it accredited by the Council for Interior Design Accreditation. Architecture students who have completed their third year of coursework are also eligible to apply. To be eligible to receive the minor a student must: 1) complete one of the two lower-division core requirements: 2) complete the upper-division electives requirement; 3) have a minimum GPA of 3.0; and 4) and have completed the sophomore portfolio review. The lower-division core is either 23 credits including: I D 101, 102, 201, 203, 215, Arch 101, and Arch 103. Transfer students complete 17 hours including: I D 103, 201, 203 and 215. The upper-division electives must be taken in Spokane and consist of 9 hours selected from I D 305, 312, 325, 350, 392, 396 and 397. Nine hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.
297 Design Communication II 3 (2-2) Prereq I D 197. Integration of manual and digital methods in design drafting.

303 Immersion Studio 6 (1-10) Prereq A. A. degree, portfolio review, 203 year Interior Design degree. Intense and concentrated experience in design of interior spaces from abstraction and concept to complex interiors of larger scale.

305 Freehand Sketching 3 (2-2) Prereq Arch 101, I D 102. Development of knowledge and skills in freehand sketching to facilitate design exploration and further understanding of the built environment.

312 [M] Interior Design Theory 2 Prereq I D 321. Theory, principles, and determinants of interior design applied to current practice.

321 Fundamentals of Planning and Design 5 (0-10) Prereq I D 203. Design investigations of space of specified size and complexity for people of varying social, economic, and cultural backgrounds.

325 Interior Building Systems 3 Prereq I D 203. Analysis, planning, and application of interior lighting; introduction to HVAC and plumbing systems.

333 Fundamentals of Planning and Design II 4 (1-9) Prereq I D 321. Design of interior environments for the needs of the private and public sector.

350 [H,M] History of Interiors II 3 A survey of interior environments, spatial distributions, furnishings, and related design elements in the 19th and 20th centuries.

392 [M] Professional Procedures 3 Business practices and procedures as related to interior design; contract documentation and specification writing.

396 Beginning Computer Applications for Interior Design 3 (0-6) Prereq I D 201. Design problem solving using the computer as a tool.

397 Computer Applications for Interior Design II 2 (0-4) Prereq I D 396. Continuation of I D 396 with a focus on enhancing 2D skills and introducing 3D modeling techniques.

415 Advanced Interior Construction and Detailing 3 Analysis of building construction and detailing which impacts interior space design.

425 Advanced Planning and Design I 5 (0-10) Prereq I D 333. Interdisciplinary research and design that explores interior design as a vital part of the urban landscape.

426 Advanced Planning and Design II 5 (0-10) Prereq I D 425. Design problems and presentations emphasizing the bridges between theory and practice.

428 International Design and Industry Experience V 1 (0-3) - 6 (0-18) Prereq minimum 2.50 cumulative GPA. Study abroad working with design and industry representatives in Europe. Credit not granted for both I D 428 and 528.

460 Portfolio and Representation 3 Prereq I D 425. Develop communication skills and produce documents necessary to professionally present oneself to prospective employers within the fields of design.

477 Interior Design Field Trip 1 May be repeated for credit; cumulative maximum 2 hours. Prereq junior standing. Selected issues in the field of interior design in connection with an organized field trip.

480 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

481 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

482 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

483 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

490 Cooperative Education Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. Prereq by interview only. Off-campus cooperative education internship with business, industry, or government unit.

498 Special Topics in Interior Design V 1-3 May be repeated for credit; cumulative maximum 6 hours.

499 Special Problems V 1-4 May be repeated for credit; cumulative maximum 4 hours. S, F grading.

520 Historical Perspectives of Interior Space 3 Prereq graduate standing. Historical perspectives of interior environments, spatial distributions, furnishings, and related design elements from ancient Egypt to the 18th century.

525 Interior Design Graduate Studio I 5 (0-10) Prereq I D 426. Graduate studio: application of advanced design theories, philosophies and research methodologies to enhance undergraduate design foundations through interdisciplinary studio experiences.

526 Interior Design Graduate Studio II 5 (0-10) Prereq I D 525. Graduate studio: individual thesis topics and the application of advanced design theories, philosophies, and research methodologies to student's focus topic.

528 International Design and Industry Experience V 1 (0-3) - 6 (0-18) Prereq I D 425, by interview only. Graduate-level counterpart of I D 428; additional requirements. Credits not granted for both I D 428 and 528.

530 Philosophies and Theories of the Built Environment 3 Prereq graduate standing in Arch/I D/L A. Same as Arch 530.

540 Research Methods 3 Prereq graduate standing. Same as Arch 540.

550 Design Applications 2 Prereq Arch/I D/L A 530. Same as Arch 550.

560 Interdisciplinary Seminar 3 Prereq graduate standing. Same as Arch 560.

561 Interdisciplinary Seminar II 3 Prereq Arch/I D/L A 560. Same as Arch 561.

594 Readings in Interior Design 3 Prereq graduate standing. Exploration of current topics through readings in interior design.

598 Topics in Interior Design V 1-3 May be repeated for credit; cumulative maximum 6 hours.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master's Special Problems, Directed Study and/or Examination Variable credit. S, F grading.

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**Program in Leadership and Professional Studies, WSU Spokane**

www.spokane.wsu.edu/academics/leadership

Spokane Campus, Phase I Classroom Building

509-359-7722

Professor and Academic Program Director, C. E. Barber; Professors, R. Knuth, F. Peterson; Adjunct Instructors, K. Kenney, G. Leaf, A. Reid, K. Souters, K. Souters, N. Turner.

A Bachelor of Arts degree in Leadership and Professional Studies (LPSt) prepares students to become informed leaders and responsible citizens who can effectively foster change for the benefit of others. For community professionals already in leadership roles, the LPSt Program offers knowledge-based courses in the social and behavioral sciences designed to improve current work environments. The Program’s primary learning outcomes are centered on five areas: (1) the development of professional skills, (2) understanding leadership, (3) problem-solving, (4) self-direction, and (5) commitment to addressing issues of social justice and equity.

Students study leadership from the perspective of the humanities as well as using research and theory in the social and behavioral sciences. Course content includes an examination of social and technological forces that shape society, and leadership issues related to diversity and culture. Team-building, conflict resolution, and problem-solving skills help students develop professionally. During their senior year, students identify and participate in a supervised internship designed to strengthen leadership skills in applied settings. Although most students take advantage of the wide variety of internship opportunities available Spokane urban area, they may also participate in internships in other parts of the country, or internationally.

**Learning Outcomes**

1. Professional Skills and Knowledge. Students will develop the foundational skills and knowledge required for effective leadership: (a) planning and organization; (b) communicating through written and oral formats; (c) collaborating with peers, leaders, and clients; (d) performing a high quality work; and (e) demonstrating dependability.
2. Understanding of Leadership. Students will demonstrate a depth of understanding of leadership concepts and multiple perspectives on leadership through one or more of the following: (a) rich explanations of key ideas, models, and theories; (b) interpretation of leadership actions in a variety of diverse, real-world cases; (c) application of leadership decision-making actions in work or school settings; (d) development of a global perspective on leadership in important current events, (e) demonstration of empathy for local and global leaders independent of point of view; (f) application of self-knowledge in applying leadership concepts and in choosing career leadership paths.

3. Problem-Solving. Students will demonstrate effective problem-posing, information retrieval, evaluation of information, and solution generation strategies to solve leadership problems and to make leadership decisions.

4. Self Direction. Students will express openness to personal change, self-improvement, and lifelong learning by demonstrating initiative and self-confidence as a leader.

5. Commitment to Humanity. Students will express a commitment to the "understanding, appreciation, tolerance, and protection of the welfare for all people and nature" as evidenced by personal integrity, citizenship, compassion, and service.

Certification

Students may apply for major certification in Leadership and Professional Studies after they have completed at least 60 semester credits with a cumulative grade point average of at least 2.0. These credits should include all lower-division General Education Requirements for a major in the College of Liberal Arts. Application for major certification is made online on the "Program of Study" section of the LPS of program website: www.spokane.wsu.edu/academics/leadership/application_form.htm.

Transfer Students

An Associate of Arts (AA) degree from a community college will transfer to WSU as 60 semester credit hours, and includes the completion of regular GER requirements. Note, however, that additional GERs are required by the College of Liberal Arts in order to graduate. Please see an advisor or the WSU catalog for details on the additional GERs required by the College of Liberal Arts. WSU accepts up to a maximum of 73 transfer credits.

Transfer students should apply to WSU Spokane through the Office of Student Affairs, 509-358-7537, enroll@wsu.edu. To apply, complete the Undergraduate Application for Admission, include a $38 nonrefundable application fee, and arrange to have an official transcript sent directly from each college and/or university attended showing work completed at the time of application. Final and complete transcripts must be submitted prior to initial enrollment. Online application is available at: www.spokane.wsu.edu/apply.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

BACHELOR OF ARTS IN LEADERSHIP AND PROFESSIONAL STUDIES (120 HOURS)

Before enrolling in the BA in Leadership and Professional Studies program, students must complete at least 60 semester credit hours of freshman/sophomore college course requirements (including all lower-division GERs) with a cumulative GPA of 2.5 or better. These requirements can be fulfilled at one or more of the Washington State University campuses, or at another institution of higher education (e.g. a Washington community college). After transferring to WSU Spokane, students take an additional 60 semester credits of courses to complete the 120 credits required for graduation.

The course of study is structured around four components: (1) a 30-credit Core Curriculum, (2) 24 credits of Career Focus courses (selected by the student with guidance from an academic advisor), (3) a 3-credit GER Tier III course, and (4) a 3-credit Professional Internship.

Core Requirements: The 30-credit Core consists of coursework in five areas: Leadership, Sociology, Psychology, Human Development, and Writing Proficiency.

GER Tier III Course: Complementing the core requirements is a 3-credit Tier III course that satisfies a WSU upper-division general education requirement (GER). Typically taken during the junior or senior year, a Tier III course is intended to permit focused and integrated study in an area outside a student’s major. As a general prerequisite, a Tier III course requires the completion of 60 semester credits, including one Tier I and three Tier II GER courses (See WSU Catalog for details). Several Tier III courses are offered on the Spokane campus.

Career Focus Courses: Working closely with an academic advisor, students select and complete 24 credits of Career Focus courses supportive of career interests and objectives. Students are encouraged to select Career Focus courses that fulfill requirements for a minor or a second major.

Professional Internship: The program’s capstone course is a 3-credit Professional Internship tailored to accommodate student career interests. Spokane's urban environment provides an excellent setting to fulfill the internship requirement. Students also have the option of completing the internship at an agency or organization in another part of the state or country.

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<thead>
<tr>
<th>Second Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biological [B] or Physical [P] Sciences (GER)</td>
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<tr>
<td>ComSt 102 [C] or H D 205 [C] (GER)</td>
<td>3 or 4</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
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<tr>
<td>Psych 105 [S] (GER)</td>
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<td>Electives</td>
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Second Year

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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Biological Sciences [B] (GER)</td>
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<td>Engl 201 [W] (GER)</td>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>Phil 260 [H] (GER)</td>
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<td>Complete Writing Portfolio</td>
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Third Year

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<tr>
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<tr>
<td>LPS 410 [M]</td>
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<td>300-400-level Electives</td>
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<td>Electives</td>
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<td>English 402 [W] (GER)</td>
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<td>LPS 420</td>
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<td>Psych 350 [S] (GER)</td>
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Fourth Year

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<td>Career Focus Electives</td>
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<td>LPS 485</td>
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<tr>
<td>Tier III Course [T] (GER)</td>
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<th>Hours</th>
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<td>Career Focus Electives</td>
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<tr>
<td>LPS 495 or Soc 495</td>
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Footnotes
1 Recommended social and behavioral science courses: Crm J 403; H D 301, 305, 350, 385, 403, 412; Psych 309, 311, 321, 324, 328, 444; Soc 373, 320, 332, 340, 351, 352, 356, 384, 418, 424, 430, 480; W St 300, 332.
2 Recommended arts and humanities courses: Am St 410 Phil 360; Phil 435 UH 330; UH 350.

Description of Courses

Leadership and Professional Studies, WSU Spokane Courses

LPS 400 Professional Burnout and Occupational Stress
3 Prereq 6 hours of any social science. Exploration of developments in theory, research and intervention regarding professional burnout and occupational stress.

410 [M] Leadership and the Humanities
3 Prereq junior standing. Leadership from the perspective of the humanities including historical analyses, film, literary masterpieces and contemporary treatises.
420 Leadership: Diverse Cultural Perspectives
3 Prereq junior standing. Leadership from diverse cultural perspectives including East Asian philosophies; application to personal and professional leadership roles.

483 Special Topics in Professional Development
V 1-4 May be repeated for credit; cumulative maximum 9 hours. Contemporary topics in professional development.

485 Professional Skills Development
3 Prereq completion of all lower-division GER requirements and junior standing. Preparation for professional internship; career exploration, values clarification, interview techniques, time and stress management, professional ethics and strategies for conflict resolution.

495 Internship
V 1-10 May be repeated for credit; cumulative maximum 10 hours. Prereq LPS 485. Student-initiated supervised professional and leadership development experience at training sites related to career interests. S, F grading.

499 Special Problems
V 1-4 Prereq permission of instructor. May be repeated for credit; cumulative maximum 6 hours. S, F grading.

Liberal Arts
www.libarts.wsu.edu

Description of Courses

Liberal Arts Courses

Lib A

497 Extended Degree Program Internship
V 2-16 May be repeated for credit; cumulative maximum 16 hours. Prereq junior standing. Extended Degree Program student participation as paid or unpaid intern in a government unit or a non-profit organization.

Liberal Arts, General Studies Program

www.libarts.wsu.edu/genstudies

Murrow East 106
509-335-8731

Director, M. Bloodsworth-Lugo; Associate Director, T. Whitacre.

General Studies is for students who have varied interests that may cut across the usual departmental boundaries and who wish to play a role in deciding on a suitable curriculum of study.

The degrees offered are the Bachelor of Arts in Humanities, Bachelor of Arts in Social Sciences, and Bachelor of Liberal Arts. These degrees are not identified with a specific subject-matter field on the diploma.

The Learning Goals/Outcomes for the General Studies program are primarily based on those of the General Education program. Student learning goals/outcomes can be identified as (1) reason critically; (2) conduct self-directed or independent learning projects; (3) understand the roles of normative views and values, including ethics and aesthetics; (4) communicate conclusions, interpretations, and implications clearly, concisely, and effectively, both orally and in writing; (5) acquire and assimilate knowledge in a variety of modes and contexts and recognize diverse disciplinary viewpoints and methods; (6) understand the historical development of human knowledge and cultures, including both Western and non-Western civilizations; (7) graduation of life-long learners; (8) adaptability to new situations through understanding of how information is gathered and organized and how knowledge is constructed in more than one specialty area; (9) knowledge in the main scholarly disciplines in which knowledge is organized; (10) ability to integrate knowledge from various knowledge domains; (11) preparation for advanced study and research outside the major; and (12) broad-based education in the humanities, social sciences, and sciences.

The student’s University experience in terms of assignments, course selection, classroom participation, internships, performances, community services, and service learning activities will be considered. Outcomes will be measured in terms of society and self; critical thinking and creativity; writing, listening and speaking skills; information literacy; quantitative and symbolic reasoning skills; and depth, breadth and application of knowledge.

For each of the tracks within Liberal Arts General Studies, a limited number of particular learning goals relate to each respective track. These learning goals specify knowledge and skill appropriate to the title of the degree. For example, the Bachelor of Liberal Arts, the BA in Social Science, and the various BA in Humanities options including International Area Studies, Linguistics, and Religious Studies.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

GENERAL STUDIES - INTERNATIONAL STUDIES

R. Halverson, Coordinator

The International Area Studies area of General Studies is for students who have interests that are both international and interdisciplinary. Students may choose between these major concentrations: Latin America Area Studies, German Area Studies, French and Francophone Area Studies, and European Area Studies. (Please note that Asian Area Studies, N. Kawamura Coordinator, is described in the Asian Program section of the catalog. Russian Area Studies, B. Ingemanson Coordinator, appears under the Foreign Languages and Cultures). Students who wish to earn a Bachelor of Arts in Humanities with a focus in International Area Studies will devise an approved, coherent program of study with the coordinator and a designated advisor who is a specialist in the student’s area of interest. The program of study must fulfill an academic or career goal, include prerequisites consistent with the 300-400-level major coursework, satisfy the GER requirements and any additional requirements for the College of Liberal Arts, and include language proficiency appropriate to the cultural area. The area studies major will consist of a minimum of 40 credits. No course in which C- or lower is earned will be counted toward the major. More details are available on the websites of WSU, the General Studies program, and the Foreign Languages Department, at www.forlang.wsu.edu.

GENERAL STUDIES - LINGUISTICS

L. Gordon, Coordinator

A student majoring in linguistics may expect a broad liberal education in literature, anthropology, mathematics, and philosophy around a core of language. The student will gain a substantial familiarity with several languages and types of linguistic structure and will become conversant with the formal theories of linguistic analysis and the historical study of language. Students who major in linguistics will earn a Bachelor of Arts in Humanities degree.

The major in linguistics requires 40 credit hours, variously distributed in the following sequence, depending upon the particular emphasis which the student and advisor together select.
First Year

First Term
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math Proficiency [N] (GER) 3
Science Elective (GER) 4

Second Term
Arts & Humanities [H,G] (GER) 3
Biological Sciences [B] (GER) 4
Communication Proficiency [C,W] (GER) 3
GenEd 111 [A] (GER) 3
Linguistics Elective1 3

Second Year

First Term
Linguistics Elective1 3
Math, Cpt S, or Stat Elective2 3
Physical Sciences [P] (GER) 4
Social Sciences [S,K] (GER) 3
Elective 3

Second Term
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Linguistics Elective1 3
Phil Elective3 3
Elective 3
Complete Writing Portfolio

Third Year

First Term
Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 6
Linguistics Elective1 3
300-level Foreign Language Elective4 3
Emphasis Elective5 3

Second Term
Intercultural Studies [I,G,K] (GER) 3
Linguistics Elective1 3
300-level Foreign Language Elective4 3
Elective 3

Fourth Year

First Term
Linguistics Elective1 3
300-400-level Electives 12

Second Term
Tier III Course (GER) 3
300-400-level Electives 12

Footnotes
1 Students must take 21 hours or more, including at least one historical course: Anth 350, 450, 499; Engl 256, 354, 458, 499.
2 Students must take 3-12 hours depending upon special emphasis: Cpt S 150, 405; Math 107, 171, 172, 205, 212; Stat 360.
3 Students must take 3-12 hours depending upon emphasis: Phil 201, 401, 443.
4 Students must take 6-18 hours depending on special emphasis. The 6-hour minimum, if elected, must be at the 300-level or higher.
5 Emphasis electives are chosen in consultation with the advisor to meet the required 40 credit hours and may include Psych 490, 492, SHS 371, 375, T & L 333, 414.

GENERAL STUDIES - RELIGIOUS STUDIES

(120 HOURS)

M. W. Myers, Coordinator

Religious Studies is a cross-disciplinary program designed for students who wish to develop an understanding of the nature of religion and its role in individual and social life. The program enables students to analyze critically and evaluate western and non-western religions without a predisposition to defend or reject the claims of any particular faith. The program offers both a major and a minor; it is preparatory for careers and future study in international affairs, arts, humanities, social sciences, and intercultural studies. Students who major in religious studies will earn a Bachelor of Arts in Humanities degree.

A student may earn a major in Religious Studies by completing 39 semester hours of work from among the designated courses in the several departments involved. Of these 39 hours, 12 must consist of the core courses specified below for all majors. Further courses are specified as required or elective depending on the student's focus: western religions, non-western religions, or comparative religions. There is also a language requirement.

A student must also satisfy the General Education and College of Sciences or College of Liberal Arts graduation requirements and take at least 40 of the total 120 semester hours in 300-400-level courses. For a minor in Religious Studies, a student must take at least 18 semester hours of work, including the core (minus the Seminar in Religious Studies) and three courses from the required list of comparative religion. Religious Studies also makes an ideal second major.

First Year

First Term
Engl 101 [W] (GER) 3
For L Elective 4
GenEd 110 [A] (GER) 3
Math Proficiency [N] (GER) 3
Science Elective 4

Second Term
Arts & Humanities [H,G] (GER) 3
Biological Sciences [B] (GER) 4
Communication Proficiency [C,W] (GER) 3
For L Elective 4
GenEd 111 [A] (GER) 3

Second Year

First Term
Anth 303 3
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
For L Elective 4
Physical Sciences [P] (GER) 4
Social Sciences [S,K] (GER) 3

Second Term
For L Elective 4
Intercultural Studies [I,G,K] (GER) 3
Phil 207 3
Soc 341 [S] (GER) 3
Tier III Course (GER) 3
Complete Writing Portfolio

Junior & Senior Year — Choose one option:


Non-Western Religions: Hist 273, Phil 314, 315; six courses from: Anth 303, 330; F A 201, 202, 302; Hist 270, 275, 308, 370, 373, 374, 408, 470, 472, 473; Hum 350; Soc 341.


GENERAL STUDIES - SOCIAL SCIENCES/
HUMANITIES PLAN A (120 HOURS)

T. Whitacre, Coordinator

This division of general studies is for students whose primary interest in the humanities or social sciences requires programs and course selections which are not possible within single academic units or established curricula. Students who wish to earn a Bachelor of Arts in Humanities or a Bachelor of Arts in Social Sciences will devise an approved, coherent program of study which fulfills an academic or career goal and includes prerequisites consistent with the 300-400-level course work. In addition, each student will satisfy the General Education Requirements and any additional requirements of the College of Liberal Arts.

Primary concentration: a minimum of 24 semester credits, including at least 15 300-400-level credits, must be completed in a single humanities or social sciences department or published program with a minimum 2.00 primary concentration GPA. The degree (Gen H or Gen S) will depend on the primary concentration.

Secondary concentration: a minimum of 15 semester credits, including at least 6 300-400-level credits, must be completed in another academic department, program or area published in the catalog with a minimum 2.00 GPA.

For a list of approved Plan A areas, please contact the Liberal Arts General Studies office.

First Year

First Term
Arts & Humanities [H,G] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math Proficiency [N] (GER) 3

Second Term
Biological Sciences [B] (GER) 4
Communication Proficiency [C,W] (GER) 3
Elective 3
GenEd 111 [A] (GER) 3
Social Sciences [S,K] (GER) 3

Second Year

First Term
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
For L Elective 4
Physical Sciences [P] (GER) 4
Social Sciences [S,K] (GER) 3

Second Term
For L Elective 4
Intercultural Studies [I,G,K] (GER) 3
Phil 207 3
Soc 341 [S] (GER) 3
Tier III Course (GER) 3
Complete Writing Portfolio
Arts & Humanities [H,G], Intercultural Studies

Secondary Concentration

First Term Hours
300-400-level Primary Concentration 3
Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
Elective 3
Primary Concentration 3
Second Concentration 3
Secondary Concentration 3

Third Year

First Term Hours
300-400-level Primary Concentration 3
Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
Elective 3
Primary Concentration 3
Second Concentration 3

Second Term Hours
300-400-level Primary Concentration 3
300-400-level Secondary Concentration 3
Electives 6
Tier III Course [T] (GER) 3

Electives 6

Fourth Year

First Term Hours
300-400-level Primary Concentration 6
300-400-level Secondary Concentration 3
Electives 6

Second Term Hours
300-400-level Primary Concentration 3
Electives 12

Footnotes
1 Students must take a total of 40 hours of upper-division (300-400-level). The areas require 21 upper-division hours. The GER requires 3 upper-division hours. The remaining 16 hours may be taken in the electives, the GERs or by electing to take more than the minimum required in the areas.
2 Among the 300-400-level course work in the areas, two courses, each at 3 hours, must have a [M] designation.

GENERAL STUDIES - SOCIAL SCIENCES/
HUMANITIES PLAN B (120 HOURS)

T. Whitacre, Coordinator

Humanities: A combination of humanities courses totaling at least 39 hours involving three academic areas with a minimum of 9 hours in each of the three areas. At least 21 of the 39 hours must be at the 300-400 level and the GPA for the 39 hours must be a 2.00 minimum. Students declare the General Humanities major (Gen H) and receive a Bachelor of Arts in Humanities.

Social Sciences: A combination of social sciences courses totaling at least 39 hours involving three academic areas with a minimum of 9 hours in each of the three areas. At least 21 of the 39 hours must be at the 300-400 level and the GPA for the 39 hours must be a 2.00 minimum. Students declare the General Social Sciences major (Gen S) and receive a Bachelor of Arts in Social Sciences.

For a list of approved Plan B areas, please contact the Liberal Arts General Studies office.

First Year

First Term
Arts & Humanities [H,G] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math Proficiency [N] (GER) 3
Elective 3

Second Term
Biological Sciences [B] (GER) 4
Communication Proficiency [C,W] (GER) 3
GenEd 111 [A] (GER) 3
Social Sciences [S,K] (GER) 3
Elective 3

Second Year

First Term
Area 1 3
Area 2 3
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Physical Sciences [P] (GER) 4

Second Term
Area 1 3
Area 2 3
Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
Intercultural Studies [I,G,K] (GER) 3
Science Elective 4
Complete Writing Portfolio

Third Year

First Term Hours
300-400-level Area 1 3
Area 2 3
Area 3 3
Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
Elective 3

Second Term Hours
300-400-level Area 2 3
300-400-level Area 3 3
Tier III Course [T] (GER) 3
Electives 3

Fourth Year

First Term Hours
300-400 Any Area 9
Electives 6

Second Term Hours
300-400 Any Area 3
Electives 12

Footnotes
1 Students must take a total of 40 hours of upper-division (300-400-level). The areas require 21 upper-division hours. The GER requires 3 upper-division hours. The remaining 16 hours may be taken in the electives, the GERs or by electing to take more than the minimum required in the areas.
2 Among the 300-400-level course work in the areas, two courses, each at 3 hours, must have a [M] designation.

GENERAL STUDIES - TEACHER TRAINING

Students who are preparing to teach at the secondary level may in some cases receive their degrees in general studies. Such students must fulfill the requirements for graduation of the College of Sciences or College of Liberal Arts. There are no further requirements if they complete their teaching major and minor and fulfill all the requirements for teaching certification. The degree awarded is Bachelor of Arts in Humanities, Bachelor of Arts in Social Sciences, or Bachelor of Science according to the endorsement granted in the student's major teaching field.

The secondary teaching major in physical science will receive a Bachelor of Science degree.

For further information on teaching certification, refer to the Department of Teaching and Learning.

Minors

American Indian Studies

O. Svingen, Coordinator

The minor in American Indian Studies requires 18 semester hours which shall include a required 9 hour core (Anth 320, CES 171 and Hist 308) and 9 hours of electives (Anth 327, 331, 333, 435, CES 372, 373, 379, 470, 475, FA 301, Hist 410, or MUS 265). At least 9 of the credits must be taken at WSU and at least 9 hours must be at the 300-400 level. A minimum of 12 credits must be taken for a letter grade and a minimum GPA of 2.00 is required in the minor coursework.

Classical Studies

R.S Williams, Coordinator

Students wishing to minor in classical studies are required to take a minimum of 16 hours of course work, at least 9 of which are at the 300-level and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Students are encouraged, but not required, to take a classical language.

Religious Studies

M. Myers, Coordinator

For a minor in religious studies, a student must take at least 18 semester hours of work, of which at least half must be 300-400-level taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. The minor includes the core (minus the Seminar in Religious Studies) and three courses from the required list of comparative religion.

Certificates

Certificate in American Indian Studies

O. Svingen, Coordinator

The certificate in American Indian Studies requires 18 semester hours which shall include a required core (9 hours) and 9 hours of electives. 15 of the credits must be taken at WSU, and 9 hours must be at the 300-400-level. A minimum of 12 credits must be taken for a letter grade and a grade of C or better must be earned in each of the required
and recommended courses in order to qualify for the certificate. Any currently enrolled degree-seeking student is eligible to enroll in the certificate program. Other students must meet the existing admissions standards for non-degree-seeking students. The university undergraduate certificate fee will apply. Students must complete Anth 320, CES 171, and Hist 308. The remaining 9 hours are chosen from the following elective courses: Anth 327, 331, 333, 435, CES 372, 373, 379, 470, 475, FA 301, Mus 265. Other courses in American Indian studies may be added to the elective pool as they become available. Contact O. Svingen, coordinator, for more information.

Program in Materials Science

www.materials.wsu.edu

509-335-4520


Materials science includes the principles and practice of designing, synthesizing, characterizing, preparing, and fabricating useful materials. The Materials Science Program accepts qualified bachelor's and master's graduates in the sciences and engineering who now wish to pursue graduate research for a PhD in the area where the disciplines overlap. Materials science is an interdisciplinary program and this feature is emphasized in the research activities.

Requirements for the Materials Science PhD include a minimum of 72 credit hours of which at least 34 hours are graded course work. The common ground for all participants in materials science is covered by the core of courses (16 credits) required of all students. The core provides a general overview to the field as well as advanced courses in thermodynamics, solid state physics, applied mathematics, and materials characterization. All students must attend the materials science seminar series, which provides an opportunity to find out the current research activities in the program and associated departments. After completion of the core of courses, students then select additional courses (a minimum of 18 credit hours) in areas that are applicable to their research program. These courses can come from any area of physical science, engineering, and mathematics.

All students complete an original research dissertation (MatS 800). After admission to candidacy for the degree, students select a research supervisor from the materials science faculty. A broad spectrum of contemporary research areas is available.

Description of Courses

Materials Science Courses

Mat S

503 Current Topics in Materials Science V 1-3 May be repeated for credit. Recent advances and current research at the forefront of materials science.

505 Advanced Materials Science 4 Broad baseline in materials science including relationships between structure and properties.

506 Biomaterials 3 Prereq MSE 201 and permission of instructor. Same as MSE 506.

513 Crystal Plasticity 3 Rec Math 440. Same as MSE 513.

516 Phase Transformations 3 Rec MSE 314, 316. Same as MSE 516.

521 Statistics of Microstructures 3 Prereq Math 440, 540 or permission of instructor. Same as MSE 521.

538 Special Topics V 1-3 May be repeated for credit. Selected topics of current interest in advanced materials science.

570 Chemistry of Polymers and Biopolymers 3 Prereq C or better grade in Chem 345, 346, or MSE 402. Same as Chem 570.

571 Microscopic Analysis of Solid Surfaces 3 Modern spectroscopic methods for microscopic analysis of solid surfaces; emphasizes electron, ion, laser, and x-ray techniques.

593 Seminar in Physical Chemistry and Materials Science 1 Prereq graduate standing. Same as Chem 593.

600 Special Projects or Independent Study Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

Department of Mathematics

www.math.wsu.edu

Neill 103

509-335-4918


The Department of Mathematics provides undergraduate instruction and training in all major fields of mathematics. The numerous service courses taught by the department reflect the growing importance of mathematics in an increasing number of other disciplines.

Undergraduate training for mathematics majors is provided at WSU in the following seven options: actuarial science, applied statistics, computational mathematics, mathematical modeling, operations research, secondary mathematics teaching, and theoretical mathematics. The options prepare students for careers related to the respective fields. The mathematics major also prepares students for graduate study in such fields as business, economics, management science and computer science, as well as mathematics and statistics. Talented undergraduate majors in mathematics are given individual and small group instruction outside of class, sometimes resulting in research publications.

We expect that students graduating with a mathematics degree will be able to: 1) use their mathematics skills within the context of a strong, fundamental general education, 2) use the fundamentals of the life and physical sciences, 3) apply a fundamental knowledge and practical understanding of mathematics, 4) continue learning in both traditional and non-traditional educational settings, and 5) communicate effectively.

Graduate study and specialization are offered by the department in both classical and modern areas. The PhD with Teaching Emphasis program is specially designed for future college teachers, while the several options in applied mathematics, which include an internship experience, provide graduate preparation for mathematical careers in business and industry.

All students who enroll in 100-200-level mathematics courses must show that they have satisfied the prerequisite(s). One way to satisfy a prerequisite is to obtain an appropriate score on the Mathematics Placement Test (MPT). All new WSU students are urged to take the MPT. The MPT is not needed for students who have already completed the prerequisite college mathematics course or obtained the appropriate score on the quantitative SAT test, or for transfer students who have already satisfied General Education Requirements (GERs) and do not intend to take a mathematics course at WSU. See www.math.wsu.edu/placement for more information.

The department offers courses of study leading to the degrees of Bachelor of Science in Mathematics, Master of Science in Mathematics (with an Applied Mathematics option), Doctor of Philosophy, and Doctor of Philosophy with Teaching Emphasis.

Preparation for Graduate Study

As preparation for work toward an advanced degree in mathematics, a student should have completed the equivalent of one of the schedule of studies. Adequate opportunities are provided for removing deficiencies through the taking of appropriate courses. Students who contemplate undertaking studies leading to a doctoral degree should contact the department for advice and assistance in the development of their plans.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III
course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

**MATHEMATICS**

**MATHEMATICS MAJOR REQUIREMENTS**

In addition to the General Education requirements and the College of Sciences requirements, a mathematics major is required to take Math 171, 172 (or 182), 220 (or 230), 273 (or 283), 300, 301, 315, 360 (or 443), 398, 401, 402, 420, 421, four additional 300-400 level Math courses specified by a chosen option, Cpt S 121, Phys 201, and Engl 402 (or 403 for non-native English speakers). These core courses are required for all mathematics major options, except the Secondary Mathematics Teaching Option, where Cpt S 121, Math 402 and 420 are not required, Math 303 and 330 are required, Engl 201 (or 301) is required instead of 402, Math 320 may be substituted for 421. Courses required for the major may not be taken pass/fail, and a 2.0 minimum GPA is required.

**THIRD AND FOURTH YEAR MATHEMATICS OPTIONS REQUIREMENTS**

Mathematics majors must complete the courses specified by one of the following options:

**Actuarial Science Option**

Required Courses: Math 360, 416, 423, 443, 456 (cover material for first actuarial exam). Suggested Courses: Electives Econ 101, 102, 302, 401, and Fin 325 provide background for second actuarial exam: B Law 210, Acctg 230 and 231, Econ 401 and 411, Engl 201 (or 301) is required instead of 402, Math 320 may be substituted for 421. Courses required for the major may not be taken pass/fail, and a 2.0 minimum GPA is required.

**Computational Mathematics Option**

Required Courses: Cpt S 122, Math 364, 448, and two of (416, 440, 464, 466). Suggested Courses: Computer Science minor with Cpt S 223 and three upper-level courses (e.g. Cpt S 317, 332, and 445 or 450), approved by the Cpt S undergraduate coordinator.

**Mathematical Modeling Option**

Required Courses: Math 415, 440, 448, 466. Suggested Courses: Two of (Math 364, 416, 441, 464, 423), and a minor in an area that uses mathematical modeling.

**Operations Research Option**

Required Courses: Math 364, 464, and two of (325, 416, 448, 453, 456, 466).

**Theoretical Mathematics Option**


**Secondary Mathematics Teaching Option**

See separate schedule of studies below.

**Certification Requirements**

1. Applications for certification are accepted at any time during fall and spring semesters. Decisions are made within ten working days of receipt of application. Application forms are available in the Mathematics Department office.
2. Applications are evaluated, and certification decided, by a faculty committee.
3. Applicants must have an overall GPA of at least 2.0.

4. The mathematics core consists of Math 171, 172, 220. This core (or its equivalent for transfer students) must be completed before application.
5. Students with at least a 2.5 GPA in the mathematics core will be certified automatically. Those with less than a 2.0 GPA in the mathematics core will normally not be certified. Others will be considered on a case-by-case basis.
6. Appeals on certification decisions are considered by the department chairperson.
7. Students who are denied certification may reapply after completing at least 12 more semester hours, whereupon decisions are based on grades in mathematics, science, and computer science courses; cumulative grade point average and grade patterns; and a personal interview.
8. Certified students whose cumulative GPA or GPA in mathematics courses numbered 171 and above falls below 2.0 for two consecutive semesters, or who are academically deficient, are subject to decertification.
9. Applications for recertification are handled in the same manner as certification applications for those previously denied.

**FIRST YEAR**

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 171 [N] (GER)</td>
<td>4</td>
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**SECOND YEAR**

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<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>Second Term</td>
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<tr>
<td>Cpt S 121</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Math 172</td>
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<tr>
<td>Math 220 or 230</td>
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<td>Social Science [S,K] (GER)</td>
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**SECOND YEAR**

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<tbody>
<tr>
<td>First Term</td>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>Math 273</td>
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<td>Math 300 [M]</td>
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<td>Phys 201 [P] (GER)</td>
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<td>Second Term</td>
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<tr>
<td>Biological [B] or Physical [P] Sciences (GER)</td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>Math 301</td>
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<td>Math 315</td>
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<td>Math 360</td>
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<td>Complete Writing Portfolio</td>
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**THIRD YEAR**

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<tbody>
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<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Engl 402 [W] (GER)</td>
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<td>Math 420</td>
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<td>Math Option Course</td>
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<td>Math 398</td>
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**FOURTH YEAR**

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<td>Math 401 [M]</td>
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<td>Second Term</td>
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<td>Math 402 [M]</td>
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<tr>
<td>Math Option Course</td>
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<td>Electives</td>
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Footnotes

1. Actuarial Science Option students should take Econ 101, 102.
2. Computational Mathematics Option students must take Cpt S 122.
3. See Mathematics Options list for suggested electives.
4. See Mathematics Options list for required option courses.

**MATHEMATICS - SECONDARY TEACHING OPTION**

**OPTION (134 HOURS)**

In addition to the General Education requirements and the College of Sciences requirements, a mathematics major is required to take Math 171, 172 (or 182), 220 (or 230), 273 (or 283), 300, 301, 315, 360 (or 443), 398, 401, 402, 420, 421, four additional 300-400 level Math courses specified by a chosen option, Cpt S 121, Phys 201, and Engl 402 (or 403 for non-native English speakers). These core courses are required for all mathematics major options, except the Secondary Mathematics Teaching Option, where Cpt S 121, Math 402 and 420 are not required, Math 303 and 330 are required, Engl 201 (or 301) is required instead of 402, Math 320 may be substituted for 421. Courses required for the major may not be taken pass/fail, and a 2.0 minimum GPA is required.

**SECONDARY MATHEMATICS TEACHING OPTION**

Required Courses: Math 303, 330, 431, 432 and two additional 3-credit 300-400 level Math classes. Mathematics major core courses Cpt S 121, Math 402 and 420 are not required. Students must take Engl 201 (or 301) instead of Engl 402. Students may substitute Math 320 for 421. T&L Requirements: Secondary education teacher certification also requires Psych 105, EdPsy 468, T&L 300, 301, 317, 415, 464, 465, 466, 467, 469 and 470. A T&L advisor must be consulted for approval and sequencing.

**Certification Requirements**

1. Applications for certification are accepted at any time during fall and spring semesters. Decisions are made within ten working days of receipt of application. Application forms are available in the Mathematics Department office.
2. Applications are evaluated, and certification decided, by a faculty committee.
3. Applicants must have an overall GPA of at least 2.0.
4. The mathematics core consists of Math 171, 172, 220. This core (or its equivalent for transfer students) must be completed before application.
5. Students with at least a 2.5 GPA in the mathematics core will be certified automatically. Those with less than 2.0 GPA in the mathematics core will normally not be certified. Others will be considered on a case-by-case basis.

6. Appeals on certification decisions are considered by the department chairperson.

7. Students who are denied certification may reapply after completing at least 12 more semester hours, whereupon decisions are based on grades in mathematics, science, and computer science courses; cumulative grade point average and grade patterns; and a personal interview.

8. Certified students whose cumulative GPA or GPA in mathematics courses numbered 171 and above falls below 2.0 for two consecutive semesters, or who are academically deficient, are subject to decertification.

9. Applications for recertification are handled in the same manner as certification applications for those previously denied.

First Year

First Term | Hours
---|---
Biological Sciences [B] (GER) | 4
Engl 101 [W] (GER) | 3
GenEd 110 [A] (GER) | 3
Math 171 [N] (GER) | 4

Second Term | Hours
---|---
Arts & Humanities [H,G] (GER) | 3
GenEd 111 [A] (GER) | 3
Math 172 | 4
Math 220 or 230 | 2 or 3
Psych 105 [S] (GER) | 3

Second Year

First Term | Hours
---|---
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) | 3
Engl 201 [W] (GER) | 3
Math 273 | 2
Math 300 [M] | 3
Phys 201 [P] (GER) | 4

Second Term | Hours
---|---
Biological [B] or Physical [P] Sciences (GER) | 4
Intercultural Studies [L,G,K] (GER) | 3
Math 301 | 3
Math 315 | 3
T & L 1300 | 1

Complete Writing Portfolio

Third Year

First Term | Hours
---|---
Arts & Humanities [H,G], Intercultural Studies [L,G,K] or Social Sciences [S,K] (GER) | 3
Math 303 | 3
Math 330 [M] | 3
Math 360 | 3
Math 401 [M] or 431 | 3
T & L 301 | 2

Second Term | Hours
---|---
Arts & Humanities [H,G], Intercultural Studies [L,G,K] or Social Sciences [S,K] (GER) | 3
Math 320 or 421 [M] | 3
Math 398 | 1
Math Option1 | 3
Math Option or 4321 | 3
T & L 317 | 2

Fourth Year

First Term | Hours
---|---
Math 401 [M] or 431 | 3
T & L 464 | 3
T & L 465 | 3
T & L 466 | 2
Tier III Course [T] (GER) | 3

Second Term | Hours
---|---
EdPsy 468 | 3
Math Option or 4321 | 3
T & L 467 | 3
T & L 469 | 2
T & L 470 | 3

Fifth Year

First Term | Hours
---|---
T & L 415 (Student Teaching) | 16

Footnotes:
1. Math Option courses must be 3-credit 300-400-level Math courses.

Minors

Mathematics

A mathematics minor requires 18 hours of approved mathematics courses, with at least 9 hours of 300-400-level credits taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Check with the Mathematics Department for current list of approved courses. Courses required for the minor may not be taken pass, fail and minimum 2.0 GPA is required in these courses.

Description of Courses

Mathematics Courses

Math

100 Basic Mathematics 2 Review of basic arithmetic and elementary algebra. (This material is currently available on the Pullman campus through a 3 credit course, Math 90, taught by the Institute for Extended Learning, Community Colleges of Spokane.) S, F grading.

101 Intermediate Algebra 3 Fundamental algebraic operations and concepts. (This material is currently available on the Pullman campus through a 3 credit course, Math 91, taught by the Institute for Extended Learning, Community Colleges of Spokane.)

103 Algebra Methods and Introduction to Functions 3 Fundamental algebraic operations and concepts, linear systems and inequalities, polynomial and rational functions, introduction to exponential and logarithmic functions. (This material is currently available on the Pullman campus through a 3 credit course, Math 99, taught by the Institute for Extended Learning, Community Colleges of Spokane.)

105 (210) [N] Exploring Mathematics 3 Prereq Math 101 or 103 with a grade of C or better or satisfactory math placement score. Nature and scope of modern mathematics, relationships to other disciplines.

107 Precalculus 4 Prereq Math 101 or 103 with a grade of C or better or satisfactory math placement score. Graphs, properties, and applications of polynomial, rational, exponential, logarithmic, and trigonometric functions.


111 Mathematics Tutorial for Math 201 1 Prereq c// Math 201. Student-centered group tutorial focusing on skill improvement for success in Math 201. S, F grading.

140 [N] Calculus for Life Scientists 4 Prereq Math 107 with a grade of C or better, or satisfactory math placement score. Differential and integral calculus with emphasis on life science applications. Credit not normally granted for more than one of Math 140, 171, 202, 206.

171 [N] Calculus I 4 (3-3) Prereq Math 107 with a grade of C or better, or satisfactory math placement score. Differential and integral calculus of one variable with associated analytic geometry. Credit not normally granted for more than one of Math 140, 171, 202, 206.

172 Calculus II 4 (3-3) Prereq Math 171 with a grade of C or better. Techniques and applications of one-variable calculus; estimations; series, derivative of a vector function.

182 Honors Calculus II 4 (3-3) Prereq Math 171 with a grade C or better and permission of instructor. Single variable calculus, series, with emphasis on conceptual development and problem solving.

201 Introduction to Finite Mathematics for Business and Economics 3 Prereq Math 101 or 103 with a grade of C or better or satisfactory math placement score. Basic notions of logic, linear algebra, matrices and analytic geometry; applications to linear programming.

202 [N] Calculus for Business and Economics 3 Prereq Math 107 or 201 with a grade of C or better, or satisfactory math placement score. Differential and integral calculus of the polynomial, exponential, and logarithmic functions. Credit not normally granted for more than one of Math 140, 171, 202, 206.

205 [N] Statistical Thinking 3 Prereq Math 101, 103 or intermediate math placement score of 13. Same as Stat 205.

206 [N] Calculus for Architects 3 Prereq Math 107, with a grade C or better or satisfactory math placement score. Calculus of elementary functions; trigonometry; applications to architects. Credit not normally granted for more than one of Math 140, 171, 202, 206.
212 [N] Introduction to Statistical Methods
4 (3-3) Prereq Math 103 or intermediate math placement score of 13. Same as Stat 212.

216 Discrete Structures 3 Prereq Math 107, Phil 201, and a programming course. Discrete mathematics, trees, graphs, elementary logic, and combinatorics with application to computer science.

220 Introductory Linear Algebra 2 Prereq Math 171 or c/. Elementary linear algebra with geometric applications. Credit not normally granted for more than one of Math 220 and 230.

230 Honors Introductory Linear Algebra 3 Prereq Math 171 or c/ and permission of the instructor. An introduction to linear algebra with an emphasis on conceptual development. Credit not normally granted for more than one of Math 220 and 230.

251 Mathematics for Elementary School Teachers I 3 (2-2) Prereq satisfactory math placement score or Math 101, 103, or 107 with a C or better. Logical and historical development of present-day number systems and associated algorithms; methods of problem solving.

252 [N] Mathematics for Elementary School Teachers II 3 (2-2) Prereq one year high school geometry; Math 251. Informal approach to basic ideas: mensuration, geometrical constructions, similarity, congruence, symmetry, probability, counting principles, measures of central tendency, graphical representation.

273 Calculus III 2 Prereq Math 172 with a grade C or better. Calculus of functions of several variables.

283 Honors Calculus III 2 Prereq Math 182 or by permission. Multivariable calculus with emphasis on conceptual development and problem solving.


301 Introduction to Mathematical Reasoning 3 Prereq Math 220. Mathematical arguments and the writing of proofs.

302 Theory of Numbers 3 Prereq Math 172, 220, and 301, each with a C or better. Divisibility properties of integers; congruences; Diophantine equations; quadratic residues.

303 [M] Higher Geometry 3 Prereq Math 220 with a C or better. Geometry as a deductive system of logic, postulational systems; projective and non-Euclidean geometries.

315 Differential Equations 3 Prereq Math 273 with a grade C or better; Math 220 with a C or better or c/. Linear differential equations and systems; series, numerical and qualitative approaches; applications.

320 [M] Elementary Modern Algebra 3 Prereq Math 220 with a C or better. Algebra as a deductive system; number systems; groups, rings, and fields.

325 Elementary Combinatorics 3 Prereq Math 220 with a C or better. Introduction to combinatorial theory: counting methods, binomial coefficients and identities, generating functions, occurrence relations, inclusion-exclusion methods.


351 Mathematics for Elementary School Teachers III 3 Prereq Math 252. Geometric transformations, coordinate methods in geometry; applications of school mathematics, mathematics software.

360 Probability and Statistics 3 Prereq Math 172. Same as Stat 360. Credit not granted for both Math 360 and 370. Cooperative course taught jointly by WSU and UI (Math 301).

364 Principles of Optimization 3 Prereq Math 202 or 220. Algebra of linear inequalities; duality; graphs, transport networks; linear programming; special algorithms; nonlinear programming; selected applications.

370 Introductory Statistics for Engineers 3 Prereq Math 172. Same as Stat 370. Credit not granted for both Math 360 and 370.

375 Vector Analysis 3 Prereq Math 315. Line integrals, gradient, curl, divergence; Stokes' theorem, potential functions.

398 Mathematical Snapshots 1 Prereq Math 172. Character, life work, and historical importance of mathematicians from various eras and branches of mathematics.

401 [M] Introduction to Analysis I 3 Prereq Math 301. Properties of sets and sequences of real numbers; limits, continuity, differentiation and integration of functions; metric spaces.

402 Introduction to Analysis II 3 Prereq Math 401. Sequences of functions, power series, multivariable calculus, inverse and implicit function theorems, Lagrange multipliers, change of variable in multiple integrations.

408 Mathematics for Economists 3 Prereq Math 201, 202. Mathematical topics applicable to modern economic analysis and research. Cooperative course taught by UI (Ag Ec 409), open to WSU students.

410 Topics in Probability and Statistics 3 Prereq one 3 hour statistics course. Same as Stat 410.

415 Intermediate Differential Equations 3 Prereq Math 315. Linear systems; qualitative theory (existence, uniqueness, stability, periodicity); boundary value problems; applications.

416 Simulation Methods 3 Prereq Cpt S 121 or 203; statistics course. Model formulation and simulation in business, industry, and government; simulation languages; analysis of simulation output; applications. Credit not granted for both Math 416 and 516.

420 Linear Algebra 3 Prereq Math 220; Math 301. Advanced topics in linear algebra including similarity transformations, canonical forms, bilinear forms.


423 Statistical Methods for Engineers and Scientists 3 Prereq Stat 560 or one 3 hour statistics course. Same as Stat 423. Credit not normally granted for both Math 423 and 430.

424 Introduction to Topology 3 Prereq Math 273; Math 301. Topological ideas including topological spaces, metric spaces, connectedness and compactness, countability and separation axioms and the Tychonoff Theorem.

425 Conceptual Aspects of Mathematics 3 Prereq college-level math course. Same as T & L 425.

430 Statistical Methods in Engineering 3 Prereq Math 172; 220. Same as Stat 430.

431 Intersections of Culture and Mathematics 3 (2-2) Prereq Math 301. Gender/race/ethnicity differences; social consequences; cultural influences on development and learning of mathematics; role of women, people of color in mathematics. Credit not granted for both Math 431 and 531.

432 Mathematics for College and Secondary Teachers 3 Prereq Math 301. Pre-algebra, algebra functions and geometry examined from an advanced perspective, for secondary and lower level college teachers. Credit not granted for both Math 432 and 532.

439 Applications of School Mathematics 3 Prereq Math 432. For preselected teachers. Role of application in the classroom; examples using arithmetic, algebra, geometry, counting principles and probability; teaching concepts in applications. Credit not granted for both Math 439 and 539.

440 Applied Mathematics I 3 Prereq Math 315. Partial differential equations; Fourier series and integrals; Bessel functions; calculus of variations; vector calculus; applications. Credit not granted for both Math 440 and 540.

441 Applied Mathematics II 3 Prereq Math 315. Complex variable theory including analytic functions, infinite series, residues, and conformal mapping; Laplace transforms; applications. Credit not granted for both Math 441 and 541.

443 Applied Probability 3 Prereq Math 172; 220. Same as Stat 443. Cooperative course taught jointly by WSU and UI (Math 451).
448 Numerical Analysis 3 Prereq FORTRAN, C, or other programming language; Math 315. Fundamentals of numerical computation; finding zeroes of functions, approximation and interpolation; numerical integration (quadrature); numerical solution of ordinary differential equations. Credit not granted for both Math 448 and 548. Cooperative course taught by WSU, open to UI students (Math 433).

453 Graph Theory 3 Prereq Math 220. Graphs and their applications, directed graphs, trees, networks, Eulerian and Hamiltonian paths, matrix representations, construction of algorithms. Credit not granted for both Math 453 and 553.

456 Introduction to Statistical Theory 3 Prereq Stat 430 or 443. Same as Stat 456. Cooperative course taught jointly by WSU and UI (Math 452).

464 Linear Optimization 3 Prereq Math 273. Linear and integer programming; optimization problems; applications to economic and military strategies; rectangular games; minimax theory. Cooperative course taught by WSU, open to UI students (Math 464).

466 Optimization in Networks 3 Prereq Math 325 or 364, or knowledge of linear programming. Formulation and solution of network optimization problems including shortest path, maximal flow, minimum cost flow, assignment, covering, postman, and salesman. Credit not granted for both Math 466 and 566.

481 Topics in Analysis 3 May be repeated for credit.


494 Seminar in Mathematical Biology 1 May be repeated for credit; cumulative maximum 4 hours. Prereq one course in math and one course in biology. Oral presentation of research approaches, research results and literature review of mathematical biology including mathematical modeling of biological systems. S, F grading.

497 Instructional Practicum 1 or 2 By interview only. May be repeated for credit; cumulative maximum 2 hours. S, F grading.

498 Career Experience Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Industrial or governmental career experience in a mathematics or mathematics-related area, supervised by qualified professionals. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

500 Proseminar 1 May be repeated for credit; cumulative maximum 2 hours. S, F grading.

501 Real Analysis 3 Prereq Math 402. Metric spaces, convergence, continuous functions, infinite series, differentiation and integration of functions of one and several variables.


504 Measure and Integration 3 Prereq Math 501. Lebesque measure, Lebesque integration, differentiation, L spaces, general measure and integration, Radon-Nikodym Theorem, outer measure and product measures. Cooperative course taught jointly by WSU and UI (Math 571).


507 Advanced Theory of Numbers 3 May be repeated for credit; cumulative maximum 6 hours. Analytic and algebraic number theory. Cooperative course taught by WSU, open to UI students (Math 507).


509 Foundations of Mathematics 3 The basis of mathematics in logic and set theory; continuum hypothesis; Godel's theorems, recent developments. Cooperative course taught by WSU, open to UI students (Math 569).

510 Topics in Probability and Statistics 3 Prereq one 3 hour statistics course. Graduate-level counterpart of Math 410; additional requirements. Credit not granted for both Math 410 and 510.


512 Ordinary Differential Equations 3 Prereq Math 402. Existence of solutions; linear systems; qualitative behavior, especially stability; periodic solutions. Cooperative course taught jointly by WSU and UI (Math 539).

515 Statistical Packages 3 (2-3) Prereq statistical methods course. No previous computer experience required. Same as Stat 515.

516 Simulation Methods 3 Prereq Cpt S 121 or 203; statistics course. Graduate-level counterpart of Math 416; additional requirements. Credit not granted for both Math 416 and 516.

523 Statistical Methods for Engineers and Scientists 3 Prereq Stat 360 or one 3 hour statistics course. Graduate-level counterpart of Math 423; additional requirements.

525 General Topology 3 Prereq Math 402. Sets, metric spaces, topological spaces; continuous mappings, compactness, connectedness, local properties, function spaces, and fundamental groups. Cooperative course taught jointly by WSU and UI (Math 521).

531 Interactions of Culture and Mathematics 3 (2-2) Graduate-level counterpart of Math 431; additional requirements. Credit not granted for both Math 431 and 531.

532 Mathematics for College and Secondary Teachers 3 Prereq graduate standing, teaching experience or intention. Graduate-level counterpart of Math 432; additional requirements. Credit not granted for both Math 432 and 532.

534 Approaches to Mathematics Teaching 3 Prereq Math 531, 532. Instruction and curricula of mathematics content for community college and high school, covering basic arithmetic through calculus.

536 Statistical Computing 3 (2-3) Prereq Stat 443 and 530, Stat 523, or by instructor's permission. Same as Stat 536.

540 Applied Mathematics I 3 Prereq Math 515, graduate standing. Graduate-level counterpart of Math 440; additional requirements. Credit not granted for both Math 440 and 540.

541 Applied Mathematics II 3 Prereq Math 515, graduate standing. Graduate-level counterpart of Math 441; additional requirements. Credit not granted for both Math 441 and 541.

543 Approximation Theory 3 Prereq Math 448. Univariate polynomial and rational approximation techniques; approximation using splines and wavelets; selected topics in multivariate approximation; algorithms for approximation. Cooperative course taught by WSU, open to UI students (Math 543).

544 Advanced Matrix Computations 3 Prereq Math 448. Advanced topics in the solution of linear systems and eigenvalue problems, including parallel matrix computations. Cooperative course taught by WSU, open to UI students (Math 544).

545 Numerical Analysis of Evolution Equations 3 Prereq Math 448. Discretization and numerical solution of partial differential equations of evolution; stability, consistency, and convergence; shocks; conservation of forms. Cooperative course taught by WSU, open to UI students (Math 545).

546 Numerical Analysis of Elliptic PDEs 3 Prereq Math 448. Methods of discretizing elliptic partial differential equations and solving the resulting systems of equations; error analysis. Cooperative course taught by WSU, open to UI students (Math 547).
548 Numerical Analysis 3 Prereq FORTRAN, C, or other programming language; Math 315; graduate standing. Graduate-level counterpart of Math 448; additional requirements. Credit not granted for both Math 448 and 548.

553 Graph Theory 3 Prereq Math 220; graduate standing. Graduate-level counterpart of Math 453; additional requirements. Credit not granted for both Math 453 and 553.

555 Topics in Combinatorics 3 May be repeated for credit; cumulative maximum 6 hours. Combinatorics, generating functions, recurrence relations, inclusion-exclusion, coding theory; experimental design, graph theory.

556 Introduction to Statistical Theory 3 Prereq Stat 430 or 443. Graduate-level counterpart of Math 456; additional requirements. Credit not granted for both Math 456 and 556.


561 Partial Differential Equations II 3 Prereq Math 560. Continuation of Math 560. Cooperative course taught by WSU, open to UI students (Math 542).

563 Mathematical Genetics 3 Prereq Math 273; MBios 301; Stat 412, 430, or 443. Mathematical approaches to population genetics and genome analysis; theories and statistical analyses of genetic parameters.

564 Nonlinear Optimization I 3 Prereq advanced multivariate calculus and a programming language; Rec Math 464, 544. Theory and algorithms for unconstrained nonlinear optimization problems, including line search, trust region, conjugate gradient, Newton and quasi-Newton methods.

565 Nonlinear Optimization II 3 Prereq Math 273, 564; programming language. Theory and algorithms for constrained linear and nonlinear optimization including interior point, quadratic programming, penalty, barrier and augmented Lagrangian methods.

566 Optimization in Networks 3 Prereq graduate standing; Math 325 or 364, or knowledge of linear programming. Graduate-level counterpart of Math 466; additional requirements. Credit not granted for both Math 466 and 566.

567 Integer and Combinatorial Optimization 3 Prereq Math 464. Theory and applications of integer and combinatorial optimization including enumerative, cutting plane, basis reduction, relaxation and matching methods.

568 Statistical Theory I 3 Prereq Math 273; Stat 430 or 443. Statistical Theory I 3 Same as Stat 548. Cooperative course taught by WSU, open to UI students (Stat 548).

569 Statistical Theory II 3 Prereq Stat 548. Same as Stat 549. Cooperative course taught by WSU, open to UI students (Stat 549).

570 Mathematical Foundations of Continuum Mechanics I 3 Prereq advanced calculus and differential equations. The basic mathematical theory of continuum mechanics and its relation to perturbation techniques and stability methods. Cooperative course taught by WSU, open to UI students (Math 570).

571 Mathematical Foundations of Continuum Mechanics II 3 Prereq Math 570. Continuation of Math 570. Cooperative course taught by WSU, open to UI students (Math 573).

572 Quality Control 3 Prereq Stat 360 or 443. Same as Stat 572.

573 Reliability 3 Prereq Stat 360, 430 or 443. Same as Stat 573. Cooperative course taught jointly by WSU and UI (Stat 571).

574 Topics in Optimization 3 May be repeated for credit. Prereq advanced multivariate calculus and a programming language. Rec Math 464, 544. Advanced topics in the theory and computing methodology in optimization with emphasis on real-life algorithmic implementation. Cooperative course taught by WSU, open to UI students (Math 564).

581 Seminar in Analysis V 1-3 May be repeated for credit. Cooperative course taught jointly by WSU and UI (Math 541).

582 Seminar in Algebra V 1-3 May be repeated for credit. Cooperative course taught jointly by WSU and UI (Math 561).

583 Seminar in Applied Mathematics V 1-3 May be repeated for credit. Cooperative course taught by WSU, open to UI students (Math 583).

584 Seminar in Topology and Geometry V 1-3 May be repeated for credit. Cooperative course taught by WSU, open to UI students (Math 584).

585 Seminar in Number Theory V 1-3 May be repeated for credit. Cooperative course taught by WSU, open to UI students (Math 587).

586 Mathematical Modeling in the Natural Science V 1-3 Prereq Math 315. Graduate-level counterpart of Math 486; additional requirements. Credit not granted for both Math 486 and 586

590 Seminar in Mathematics Education V 1-3 Prereq graduate standing. Topics in mathematics education.

591 Seminar in the History of Mathematics I 1 Topics in the history of mathematics to 1800.

592 Seminar in the History of Mathematics II 1 Topics in the history of mathematics from 1800 to present.

597 Mathematics Instruction Seminar 1 May be repeated for credit; cumulative maximum 5 hours. Prereq graduate standing. Introduction to the teaching of university mathematics. S, F grading.

600 Special Projects or Independent Study Variable credit S, F grading.

602 Internship V 2-12 May be repeated for credit. A structured internship from three to nine months; teaching at the postsecondary level or applied work in a non-academic environment. Prereq 40 hours graduate work. S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

School of Mechanical and Materials Engineering

www.mme.wsu.edu Sloan 201 509-335-8654


The School of Mechanical and Materials Engineering offers programs in Mechanical Engineering (Pullman and Tri-Cities campuses), and Materials Science and Engineering (Pullman). Each program is detailed as follows.

MECHANICAL ENGINEERING

Mechanical engineering is concerned with (a) the use and economical conversion of energy from natural sources into other useful energy to provide power, light, heat, cooling and transportation, (b) the design and production of machines to lighten the burden of human work, (c) the creative planning, development and operation of systems for using energy, machines and resources, and (d) the processing of materials into products useful to people. Employment opportunities for graduates exist in the areas of mechanical design, systems design, equipment development, manufacturing, CAD/CAM, project engineering, production management, applied research, and sales and service.

The mission of the mechanical engineering program is to provide a broad education in mechanical engineering that prepares our students for successful professional practice and advanced studies. In addition, the undergraduate curriculum prepares students for continued education at the graduate level. The educational objectives of the undergraduate mechanical engineering program are as follows: (1) To ensure that our graduates have an understanding of fundamental mathematical and scientific principles and the ability to apply these principles to relevant engineering problems,
so that they can be successful in the profession or in pursuing graduate studies; (2) to ensure that our graduates have the technical knowledge, hands-on experience, and communication skills that will allow them to function successfully as members of technical teams; and (3) to instill in our graduates an appreciation of the economic, social, environmental, and ethical impact of their professional activities and a desire for lifelong learning.

The undergraduate curriculum emphasizes foundation courses at the third year which are fundamental to all aspects of mechanical engineering. These courses emphasize both analysis and design while accompanying laboratory courses provide opportunities for hands-on experiences. Computer applications are woven throughout the program. The courses in the fourth year emphasize the integration of fundamental engineering principles into various applications in mechanical engineering. The students also take two electives tailored to their interests and career goals. The undergraduate program is completed with courses in integrated design of mechanical and thermal systems as well as a capstone laboratory course. Graduates are prepared to enter the field as engineers or to continue into a graduate program. An engineering internship program is available for students to gain industrial experience during their academic careers.

The School offers courses of study leading to the degrees of Bachelor of Science in Mechanical Engineering (accredited by the Accrediting Board for Engineering and Technology), Master of Science in Mechanical Engineering, and Doctor of Philosophy (Mechanical Engineering). The BS-MS Program is available for outstanding undergraduates, and facilitates the completion of a Master of Science degree program in Mechanical Engineering or Materials Science and Engineering. The School participates in the interdisciplinary programs leading to the Master of Science in Engineering and Doctor of Philosophy (Engineering Science).

MATERIALS SCIENCE AND ENGINEERING

The mission of the materials science and engineering program is to provide excellence in education, research, and service in the field of materials science and engineering through educational programs that graduate students with strong backgrounds in scientific and engineering problem-solving methods. Materials science and engineering is the application of methods and principles of the pure sciences to study engineering materials. The undergraduate program focuses on (a) the relationship of the microscopic structure, e.g. crystal structure and defects to the macroscopic properties of materials, e.g. strength, (b) experimental techniques for characterizing physical, chemical and structural properties of materials, and (c) design and selection of appropriate materials for given engineering applications.

The specific fields of application covered by research and instruction programs can be expressed by the nominal designations of metals (metallurgy), polymers, ceramics, electronic materials, biomaterials, and composites. Due to the diversity of useful properties encountered in materials engineering, attention must be given to application and peculiarities of these specific types of materials. Where possible, however, a generalized approach toward the study of materials, their properties, their selection, and their utilization is fostered. The broad-based instructional approach prepares graduates for careers in a wide range of industrial settings, from aerospace companies to corporations specializing in the production of solid state electronics. In addition, the undergraduate curriculum prepares students for continued education at the graduate level.

The educational objectives of the undergraduate materials science and engineering program are as follows: (1) To provide our students with an academic foundation in the fundamentals of materials science; (2) to provide our students with a program which emphasizes understanding of the interrelationship between structure, properties, and processing for engineering materials; (3) to provide our students with research experience; (4) to provide our students with an integrated mechanical-materials design experience that utilizes a teamwork approach in solving engineering problems; (5) to develop in our students the ability to communicate effectively both orally and in writing; and (6) to create an environment within the program that instills in the students a sense of professionalism, and a desire for lifelong learning.

The School offers courses of study leading to the degrees of Bachelor of Science in Materials Science and Engineering (accredited by the Accrediting Board for Engineering and Technology) and the Master of Science in Materials Science and Engineering. The school participates in the interdisciplinary programs leading to the Doctor of Philosophy (Engineering Science, Materials Science).

TRANSFER STUDENTS

The School of Mechanical and Materials Engineering cooperates with the community colleges in Washington to minimize problems associated with transfer. Inquiries are welcome. A strong preparation in mathematics, physics, and chemistry is strongly recommended prior to transfer to minimize the time required at Washington State University to complete the bachelor’s degree requirements.

The certification into the mechanical engineering or materials science and engineering programs is processed by the School. The certification requirements are described in the WSU catalog. Details for certification can also be obtained by contacting the School directly.

GRADUATE STUDY

A Bachelor of Science degree from an accredited program in mechanical engineering or materials science and engineering provides a good background for the graduate program. Students with bachelor degrees in other engineering disciplines, mathematics, and the physical sciences are routinely admitted, but may be required to make up requisite undergraduate deficiencies.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

MATERIALS SCIENCE AND ENGINEERING REQUIREMENTS (128 HOURS)

Certification Requirements:

Certification into the Bachelor of Science program in Materials Science and Engineering is limited to 21 students per entering class. Students who have completed at least 30 semester hours of graded course work with an overall minimum 2.0 GPA and who have completed the following courses with a minimum grade of 2.0 in each course: Chem 105, Chem 106, Engl 101, Math 171, 172, and Phys 201 or their equivalents are eligible. When it becomes necessary to limit enrollment, the overall GPA as well as the GPA for the prerequisite courses listed above, will be important factors. For additional details, contact the school’s office of student services.

First Year

First Term  Hours
Chem 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math 171 [N] (GER) 4
MSE 110 2
Second Term  Hours
Biological Sciences [B] (GER) 3
Chem 106 [P] (GER) 4
EconS 102 [S] (GER) 3
GenEd 111 [A] (GER) 3
Math 172 4

Second Year

First Term  Hours
Arts & Humanities [H,G] (GER) 3
C E 211 3
Cpt S 121, 251, or E E 221 2
Math 220 2
Math 273 2
Phys 201 [P] (GER) 4
Second Term  Hours
C E 215 3
Intercultural Studies [I,G,K] (GER) 3
Math 315 3
MSE 201 3
Phys 202 [P] (GER) 4
Complete Writing Portfolio

Third Year

First Term  Hours
M E 310 3
Math/Stat 370 3
MSE 302 3
MSE 312 3
MSE 320 3
Engineering and Science Elective1 3
Second Term  Hours
E E 304 2
MSE 316 3
MSE 321 3
MSE 323 2
Engineering and Science Elective1 3

Fourth Year

First Term  Hours
M E 416 3
MSE 401 3
MSE 402 3
MECHANICAL ENGINEERING REQUIREMENTS  

Certification Requirements:

Students who have completed at least 30 semester hours of graded course work with an overall minimum of 2.0 GPA and who have completed the following courses with a minimum grade of 2.0 in each course: E E 211, Chem 105, Math 103, Mech 171, 172, and Phys 201 or their equivalents are eligible to apply for certification into the Mechanical Engineering Program. Applications for certification will be reviewed by a departmental committee. When it becomes necessary to limit enrollment, the overall GPA as well as the GPA for the prerequisite courses listed above, will be important factors. Application deadline dates are March 1 for the fall semester and October 1 for the spring semester. Students who have not completed all of the prerequisite courses will be assigned to a mechanical engineering advisor. Additional details and application forms are available from the school’s office of student services.

First Year

First Term
Chem 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
M E 120 2
Math 171 [N] (GER) 4

Second Term
Biological Sciences [B] (GER) 3
Chem 106 [P] (GER) 4
GenEd 111 [A] (GER) 3
M E 103 3
Math 172 4

Second Year

First Term
C E 211 3
Cpt S 121, 153, 203, or 251 2
EconS 102 [S] (GER) 3
Math 220 2
Math 273 2
Phys 201 [P] (GER) 4

Second Term
Arts & Humanities [H,G] (GER) 3
C E 215 3
M E 212 3
M E 220 1
Math 315 3
Phys 202 [P] (GER) 4
Complete Writing Portfolio

Third Year

First Term
E E 304 2
M E 301 3
M E 303 3
M E 313 3
Math/Stat 370 3
MSE 201 3

Second Term
M E 305 2
M E 310 3
M E 311 1
M E 316 [M] 3
M E 348 3
M E 404 3

Fourth Year

First Term
Intercultural Studies [I,G,K] (GER) 3
M E 401 3
M E 402 3
M E 414 3
Technical Elective 3

Second Term
Engl 402 [W] (GER) 3
M E 406 [M] 3
M E 416 3
Technical Elective 3
Tier III Humanities or Social Sciences Course [T] (GER) 3

Footnotes

1 Select from the following courses: B E 481; C E 341, 351, 418; Chem 331, 332, 336, 345, 346, 480; E E 214; M E 212, 301, 303, 313, 316, 348, 404, 414, 449, 460, 461, 472; MBioS 303; MSE 303, 304, 463; any 500-level MSE course; any 400-500-level M E not specified above. No Tier III course can be used.
2 Select a 300-400-level course in B E, C E, Ch E, Chem, Cpt S, E E, Math, M E, MSE or Phys (except Tier III courses). A graduate-level course may be used with permission.

Mechanical Engineering Courses

M E

103 Engineering Graphics and Computer-Aided Design 3 (1-6) Orthographic theory, conventions, and visualization; isometric and oblique pictorials; geometric dimensioning and tolerancing, computer-aided drafting and solid modeling. Cooperative course taught by WSU, open to UI students (ENGR 103).

104 Engineering Graphics 2 (1-3) Orthographic theory, conventions and visualization, isometric and oblique pictorials, geometric dimensioning and tolerancing.


125 M E Merit Experience 2 Prereq by interview only. A hands-on, project-oriented course emphasizing team work and creativity in engineering design, conducted in an enriched learning environment.

212 Dynamics 3 Prereq C E 211. Kinematics and kinetics of particles and rigid bodies; introduction to mechanical vibration. Cooperative course taught jointly by WSU and UI (ME 220).

220 Materials Laboratory 1 (0-3) Prereq C E 215 or c/. Mechanical behavior of materials and application to engineering structures.

301 Fundamentals of Thermodynamics 3 Prereq Phys 201; Rec Math 315. Math 315 Thermodynamic properties of matter, ideal and real gases, work and heat, first and second laws and their application to engineering systems. Cooperative course taught jointly by WSU and UI (Engr 320).

303 Fluid Mechanics 3 Prereq M E 212. Fluid statics, laminar and turbulent flow, similitude, pipe flow, boundary layers, lift and drag and measurement techniques. Cooperative course taught jointly by WSU and UI (Engr 335).

305 Thermal and Fluids Laboratory 2 (1-3) Prereq M E 303 or c/, Math 370 or c/, major in engineering, E E 305 Instrumentation, data acquisition, and theory verification in the thermal and fluid sciences.

310 Manufacturing Processes 3 Prereq MSE 201, major in engineering. Cutting operations, metal forming by deformation, material fabrication, and nontraditional processing.

311 Manufacturing Processes Laboratory 1 (0-3) Prereq M E 310 or c/, major in engineering. Manufacturing processes laboratory in machining, welding, forming; manufacturing project.

313 Engineering Analysis 3 Prereq Math 315, major in engineering; computer science programming. Analysis and modeling of engineering problems utilizing numerical and mathematical techniques and computers.
316 [M] Systems Design 3 Prereq C E 215, MSE 201 or c//. Major in engineering. C E 211 Engineering design process for systems and components; design criteria, creativity, engineering economics, CAD, standards, product safety; design projects.

325 Manufacturing Operations Planning 3 Prereq M E 310, 311, Math 360 or c//. By permission. Quantitative techniques of production and planning and control, material requirements, operations scheduling, production economics.


375 Manufacturing Control Systems 3 (2-3) Prereq E E 304, M E 212, Math 315. Feedback control; hardware components, software algorithms, and system integration for process control.

400 Seminar in Manufacturing 2 Prereq senior standing. Current industry practice; non-technical skills (communication, product realization, human factors, ethics, corporate culture, market focus, career development).

401 Mechatronics 3 (2-3) Prereq E E 304; M E 348. Integration of mechanical and microprocessor-based systems; control theory implemented with data acquisition systems; sensors; actuators, signal conditioning, programmable logic controllers.


404 Heat Transfer 3 Prereq M E 301, 303 or c//, major in engineering. Conduction, radiation, and convection heat transfer; analytical, numerical, experimental results for solids, liquids, and gases; heat exchanger design. Cooperative course taught jointly by WSU and UI (ME 345).


407 Computational Fluid Dynamics 3 Prereq M E 303. Basic concepts and applications of computational fluid dynamics to the analysis and design of fluid systems and components.


413 Mechanics of Solids 3 Prereq C E 215, MSE 201. Same as MSE 413.


416 Mechanical Systems Design 3 (1-6) Prereq M E 348 or 375; M E 404; 414 or c//. M E 316. Integrative design in mechanical engineering; multidisciplinary design project considering both technical and non-technical contexts; organizational dynamics and communications.

419 Air Conditioning 3 Prereq M E 404. Principles of heat and moisture transfer; air motion and purity in buildings; design of systems. Cooperative course taught jointly by WSU and UI (ME 444).

420 Capstone Engineering Design 3 (1-6) Prereq senior in engineering. Integrative design in engineering; multi-disciplinary design project considering both technical and non-technical contexts; organizational dynamics and communications.


436 Combustion Engines 3 Prereq M E 303. Internal combustion engines; spark ignition engines, diesels, and gas turbines.

439 Applied Aerodynamics 3 Prereq M E 303. Aerodynamic lift and drag; circulation; boundary layers, application to subsonic aircraft wing design.

449 Mechanical Vibration 3 Prereq M E 348. Vibrating systems and noise producing mechanisms; design for noise and vibration control. Cooperative course taught jointly by WSU and UI (ME 472).


460 Nuclear Reactor Engineering 3 Prereq M E 461. Nuclear reactor design problems in thermodynamics, fluid flow, heat transfer, fuel preparation, waste disposal, materials selection; discussion of reactor types. Cooperative course taught by UI (NE 460), open to WSU students.

461 Introduction to Nuclear Engineering 3 Prereq junior in engineering or physical science. Applied nuclear physics; application to the nuclear fuel cycle and nuclear reactor core design; nuclear reactor systems and safety. Cooperative course taught jointly by WSU and UI (NE 360).

470 Dynamics of Machinery 3 Prereq M E 348. Kinematics and kinetics of mechanisms and machines; static and dynamic force analyses of planar and spatial systems; synthesis for functionality.


473 Computer-aided Design 3 (2-3) Prereq M E 316. Interactive computer programming and graphics in the design of engineering systems.

474 Advanced Manufacturing Processes 3 Prereq M E 310. Mechanical and metallurgical fundamentals of metal machining and materials processing by deformation; manufacturing systems concepts in production.

475 Manufacturing Automation 3 (2-3) Prereq Cpt S 203 or 251; E E 304; M E 310. Computer control of manufacturing processes; numerically controlled machine tools, robotics, control algorithms, component and system design.

481 Control Systems 3 Prereq M E 348. Analysis and design of feedback control systems. Cooperative course taught jointly by WSU and UI (ME 481).

483 Topics in Mechanical Engineering V 1-4 (0-4; 0-12) May be repeated for credit; cumulative maximum 7 hours. Contemporary topics in materials engineering.

495 Internship in Mechanical Industry 3 or 6 May be repeated for credit; cumulative maximum 12 hours. Prereq major in materials science engineering or mechanical engineering. By interview only. Students work full time on engineering assignment in approved industries with industrial and faculty supervision. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Continuum Mechanics 3 Prereq graduate standing. Unified presentation of principles common to all branches of solid and fluid mechanics; viscous fluids, elasticity, viscoelasticity, and plasticity.

509 MEMS Engineering 3 (2-3) Prereq graduate standing or permission of instructor. Introduction to the design, fabrication and application of microelectromechanical systems.

515 Advanced Heat Transfer 3 Rec M E 404, 521. Derivation of the energy conservation equation; laminar and turbulent forced convection heat transfer with internal and external flow; free convection. Cooperative course taught jointly by WSU and UI (ME 546).

516 Conduction and Radiation Heat Transfer 3 Prereq M E 404. Principles of conduction and radiation heat transfer with focus on solving conduction and radiation problems of engineering interest.

520 Multiscale Modeling in Thermodynamics of Materials 3 Prereq Math 540 or Phys 571; Math 570, M E 501, 521, 526, 531 or MSE 513. Multiscale problems in thermodynamics of materials: practical and computational aspects of homogenization, granular materials, dislocation plasticity and atomistic methods.
521 Fundamentals of Fluids I 3 Prereq C E 315 or M E 303. Governing equations of fluid mechanics accompanied by applications of Navier-Stokes equation to simple flow situations, boundary layer analysis.

522 Fundamentals of Fluids II 3 Rec M E 521. Viscous shear layers including heat and mass transfer, compressibility effects, vortex dynamics, stability and transition, turbulence analysis and modeling.

523 Engineering Acoustics 3 Prereq graduate standing. Fundamentals of acoustics including wave theory; transmission through layers; generation and reception, low frequency models; application to sound measurement, transducers, loudspeaker cabinet design, and nondestructive testing; acoustic design project required. Cooperative course taught by UI (ME 513), open to WSU students.

525 Biomechanics 3 Prereq B E 320, C E 215 or MSE 301; Math 315. Same as B E 525.

527 Macromolecular Thermodynamics 3 Prereq graduate standing. Basic principles of polymer chemistry; free energy, constitution, solution, and transport properties of polymers; relation to synthetic and natural polymers. Cooperative course taught jointly by WSU and UI (ME 527).

530 Elasticity 3 Prereq graduate standing. M E 414 Theory of kinematics of solid deformable bodies; conservation laws applied to an elastic continuum; generalized linear stress-strain behavior with applications.

531 Theory of Plasticity 3 Rec M E 501. The fundamentals of the theory of plasticity; the classical theory of plasticity; the classical theory and modern continuum theories of large elasto-plastic deformations.

532 Finite Elements 3 Same as C E 532. Cooperative course taught jointly by WSU and UI (CE 546).

534 Mechanics of Composite Materials 3 Prereq M E 414. Analysis of micromechanical and macromechanical behavior of composite materials with emphasis on fiber-reinforced composites; prediction of properties; stiffness and strength theories; laminated beams and plates; dynamic behavior; environmental effects. Cooperative course taught jointly by WSU and UI (ME 534).

537 Fracture Mechanics and Mechanisms 3 Same as MSE 537.

540 Advanced Dynamics of Physical Systems 3 Newtonian dynamics, rotating coordinate systems; Lagrangian and Hamiltonian mechanics; gyroscopic mechanics, other applications. Cooperative course taught by WSU, open to UI students (M E 504).

541 Advanced Mechanical Vibrations 2 or 3 Rec M E 449. Response of single and multi degree of freedom systems; finite element formulation; matrix methods, random vibrations. Cooperative course taught jointly by WSU and UI (ME 572).

542 Optimal Control of Dynamic Systems 3 Introduction to optimal control theory, differential games, and multiple criteria systems; applications in engineering, biology, economics, agriculture, and medicine. Cooperative course taught by WSU, open to UI students (ME 542).

544 Optimal Systems Design 3 Parameter design optimization techniques for nonlinear systems; theory, numerical methods, and applications; multiple criteria optimal trade-off analysis and game theory.

551 Turbulent Flow 3 Rec C E 521 or M E 521. Turbulent flow; dimensional analysis, statistical models and descriptions of organized structures.

556 Numerical Modeling in Fluid Mechanics 3 Prereq C E 515. Same as C E 556. Cooperative course taught by WSU, open to UI students (ME 556).

565 Nuclear Reactor Engineering 3 Prereq M E 461. Reactor power distribution; thermal and exposure limits; critical heat flux and pressure design; neutronic/thermal hydraulic relationships; transient/accident analysis.

569 Advanced Topics in Thermal and Fluid Sciences V 1-3 May be repeated for credit. Advanced topics in thermodynamics, heat transfer or fluid mechanics; analytical and experimental methods.

574 Foundations of CAD 3 Topics fundamental to the creation of CAD, engineering visualization, and virtual reality based engineering software. Cooperative course taught by WSU, open to UI students (ME 574).

575 Geometric Modeling 3 Study of the mathematics behind the creation of complex shapes for CAD using curves, surfaces, and solids.

579 Advanced Topics in Design and Manufacturing V 1-3 May be repeated for credit.

598 Seminar 1 May be repeated for credit. Current research interests. S, F grading.

600 Special Projects or Independent Study Variable credit, S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit, S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit, S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit, S, F grading.

Materials Science and Engineering Courses

MSE

110 Introduction to Materials Science 2 Introduction to the science and technology of metals, polymers, ceramics and composites.

201 Materials Science 3 Prereq Chem 106, Phys 201 or c//. Structure of materials, phase equilibrium, phase transformations, and mechanical properties.

302 Electronic Materials 3 Prereq Chem 105, Phys 202 or c//. Structure of materials, electronic structure of solids; thermal, electrical, dielectric, and magnetic properties of materials; semiconductors processing.

312 Thermodynamics and Phase Equilibrium 3 Prereq MSE 201. Concepts of activity, equilibrium, solution properties; relationship between free energy, composition, and temperature; heterogeneous equilibria.

316 Kinetics of Chemical and Physical Reactions 3 Kinetics of heterogeneous chemical reactions; mechanisms and kinetics of diffusion; oxidation and other gas-metal reactions; polarized electrodes; corrosion; boundary migration; nucleation and growth; eutectoid and martensitic transformations.

320 Materials Structure - Properties Lab 3 (1-6) Prereq MSE 201 or c//; major in materials science engineering. Principles and techniques of optical metallography and other laboratory methods used in modern materials science and engineering.

321 Materials Characterization 3 Prereq MSE 201. Properties of x-rays, scattering and diffraction; crystal structures; x-ray diffraction methods, transmission electron microscopy and scanning electron microscopy.

323 Materials Characterization Lab 2 (1-3) Prereq MSE 321 or c//. Laboratory exercises on materials characterization: x-ray, TEM, SEM.

401 Metallic Materials 3 Prereq MSE 201. Major alloy systems and manufacturing processes; materials selection.

402 Polymeric Materials 3 Prereq MSE 201. Structural characterization, syntheses, and reactions of polymeric materials; relationships between structure and properties, viscoelasticity, deformation, and physical behavior of polymers.

403 Ceramic Materials 3 Prereq MSE 201. Processing, characteristics, microstructure, and properties of ceramic materials.

404 Engineering Composites 3 Prereq MSE 201. Basic concept in design and specifications of engineering composites.

406 Biomaterials 3 Prereq MSE 201. Overview of the different types of materials used in biomedical applications such as implants and medical devices. Credit not granted for both MSE 406 and 506.

413 Mechanics of Solids 3 Prereq C E 215, MSE 201. Elasticity, elastic stress distributions; plastic deformation of single and polycrystals; introduction to dislocation theory and its applications; creep, fracture, fatigue.


429 Powder Metallurgy 3 Fundamentals of conventional press-and-sinter powder metallurgy (PM) and more advanced techniques; commercial applications of PM parts. Cooperative course taught by UI (MET 429), open to WSU students.


450 Seminar 1 May be repeated for credit. For seniors only.


483 Topics in Materials Engineering V 1-4 (0-4) May be repeated for credit; cumulative maximum 7 hours. Contemporary topics in materials engineering.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

503 Advanced Topics in Materials Engineering V 1-3 May be repeated for credit; cumulative maximum 6 hours.

505 Advanced Materials Science 4 Same as Mat S 505.

506 Biomaterials 3 Prereq MSE 201 and permission of instructor. Overview of the different types of materials used in biomedical applications such as implants and medical devices.

513 Crystal Plasticity 3 Rec Math 440. Dislocation theory; slip; climb; mechanical properties of polycrystalline materials, and application to important deformation processes.

514 Thermodynamics of Solids 3 Rec MSE 312. Thermodynamic properties of solid solutions; models for substitutional and interstitial solutions; configurational and non-configurational contributions; calculation of phase diagrams.

515 Electronic Properties of Materials 3 Electron energy bands in solids, electrical conduction in metals and semiconductors, applications to semi-conduction devices based on silicon and III-V compounds.

516 Phase Transformations 3 Rec MSE 314, 316. Thermodynamics, nucleation, interface motion, mechanisms and kinetics of chemical reactions between solid metals and their environment.

517 Thin Films 3 Prereq graduate standing or senior in engineering or science. Materials science aspect of thin films, including growth, characterization, and properties for electrical, mechanical, corrosion, and optical behavior.

520 Seminar 1 May be repeated for credit; cumulative maximum 3 hours. Reporting problems, research and research methods in materials science and engineering. S, F grading.

521 Statistics of Microstructures 3 Prereq Math 440, 540 or permission of instructor. Stereology, orientation and spatial distributions, percolation, measurement techniques and application to modeling of microstructures.

523 Ceramics Processing 3 Prereq graduate standing. Fundamentals of ceramic processing science for thin films and bulk ceramics.

537 Fracture Mechanics and Mechanisms 3 Fracture mechanics and mechanisms and the microstructural origins of toughness in metals, polymers and composites.

543 Polymer Materials and Engineering 3 Prereq MSE 402. Preparation and structure-property relationship of polymer materials with emphasis on fracture mechanics and toughening.

544 Natural Fibers 3 Prereq graduate standing. Structural aspects and properties of natural fibers including anatomy, ultrastructure, and chemistry.

545 Polymer and Composite Processing 3 Prereq graduate standing. Polymer and composite processing from fundamental principles to practical applications.

546 Engineered Wood Composites 3 Theory and practice of wood composite materials, manufacture and development. Cooperative course taught by WSU, open to UI students (For Pr 537).

547 Polymers and Surfaces for Adhesion 3 Prereq MSE 402 or 404. Physical chemistry of polymers and surfaces needed to understand interface morphology, adhesion mechanisms and bond performance.

548 Natural Fiber Polymer Composites 3 Prereq graduate standing. Fundamentals, development and application of composite materials produced from polymers reinforced with natural fibers and wood as major components.

592 Transmission Electron Microscopy 3 Development of the principles and applications of electron optics in microscopy.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

Department of Military Science

www.wsu.edu/~armyrotc

Avery 405

509-335-2591

Professor and Department Chair, Lieutenant Colonel C. Whitesides.

The Department of Military Science at WSU is designed to supplement a student’s academic studies by motivating, educating, and training qualified students to serve as commissioned officers in all components of the US Army. The military science academic, professional and technical education and training complement the educational programs at WSU.

The military science curriculum comprises a two-year basic course (freshman and sophomore years), and a two-year advanced course (junior and senior years). The basic course is open to all WSU students. Enrollment into the advanced course is offered only with the approval of the department chair. During the summer between the junior and senior years of military science, cadets attend National Advanced Leadership Camp (six weeks at Fort Lewis, WA). It is a training/evaluation/leadership/practicum opportunity taught by ROTC faculty from across the country and includes cadets from across the United States.

At WSU, military science courses emphasize hands-on training designed to develop leadership skills applicable to military and civilian endeavors. Students learn leadership skills through classroom instruction, on-campus leadership labs and summer training opportunities for selected students. Advanced course cadets receive a monthly allowance of $500 per month during the school year. Competitively awarded scholarships are available which, in addition to the monthly allowance, pay full tuition, enrollment fees and defray the costs of necessary books and supplies. High school students may apply for a four-year Army ROTC scholarship in the fall of their senior year; all students may apply for two- or three-year scholarships whether or not they are enrolled in the ROTC Program. Additionally, scholarships are available on a competitive basis for students desiring to earn a commission in the National Guard and Army Reserve, without a commitment to full-time active duty upon graduation.

Upon successful completion of the advanced course and graduation from WSU, cadets selected for commissioning are commissioned as Army officers and serve in Army Reserve, National Guard, or active Army units.

Description of Courses

Military Science Courses

Mil S

101 The United States Army 1 Role of the Army in contemporary society.

102 National and International Role of the Army 1 Role of the Army in today’s international affairs.
110 Cougar Rangers I 1 Military adventure training, pioneering activities, military skills and small unit tactics. Field trip required.

111 Cougar Rangers II 1 Prereq permission of instructor. Military adventure training, pioneering activities, military skills and small unit tactics. Field trip required.

201 Introduction to Leadership 2 Multidisciplinary approach to military leadership.

202 The Officer as a Professional 2 U.S. Army Officer Corps as a profession; the U.S. Army Officer as a professional.

206 Military Science Overview 5 Preparation for advanced military science program; map reading, tactics, leadership, US military history, fundamentals of army duty.

301 Applied Leadership and Management 3 Prereq instructor permission. Troop leadership procedures emphasizing instruction in military professionalism and ethics; practical aspects of tactics and leadership practicum.

302 Small Unit Tactics and Military Leadership 3 Prereq instructor permission. Preparation, delivery, and critique of practical oral presentations; leadership of small units; offensive and defensive operations.

320 Leadership Development Assessment 6 Prereq Mil S 301, 302. By interview only. Intensive study and internship in military tactics, command and leadership; held at Fort Lewis, WA. S, F grading.

396 Leader Internship 6 Prereq junior standing. By interview only. Fully funded non-committal leader internship and Army orientation; provides leader training and assessment. May be taken as MgtOp 498, Pol S 497, PEACT 201, or Ed Ad 499 with permission. S, F grading.

401 Advanced Military Leadership 3 Prereq instructor permission. Historical and legal basis of military justice; small unit management; military professionalism and ethics.

402 Advanced Military Management and Practicum 3 Prereq instructor permission. Theory and practice of Army administration/management; staff planning and correspondence; pre-commission orientation; unit management/resources application.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

School of Molecular Biosciences

molecular.biosciences.wsu.edu
Abelson 301
509-335-1276


Molecular biosciences can be viewed as a dynamic continuum in which approaches derived from biology, chemistry, and physics are utilized to address the fundamental mechanisms of living things. The School of Molecular Biosciences offers undergraduate majors in biochemistry, biotechnology, genetics and cell biology, and microbiology. Students interested in the health professions can major in biochemistry, genetics and cell biology, or microbiology, and readily complete the requirements for application to medical, dental, veterinary, or other professional schools. Each of the areas is described below in more detail.

The School of Molecular Biosciences also offers undergraduate minors in biochemistry, genetics and cell biology, microbiology, molecular biology, and pre-genetics counseling. Requirements for the minors are detailed below.

Biochemistry

Biochemistry is an interdisciplinary science that involves the application of methods and theories of chemistry to the study of biological phenomena. An undergraduate major in biochemistry prepares you for a variety of careers in industry, education, public service, and the health professions, or for graduate study and research in biochemistry, biophysics, molecular biology, and many related fields. Students have training opportunities in a wide range of research areas including protein biochemistry, membrane structure and function, molecular biology of gene regulation in animals, plants, and microorganisms, enzymatic reaction mechanisms, signal transduction, DNA repair, reproductive biology, protein-DNA interactions, plant and natural product biochemistry, and structural biology including NMR spectroscopy and X-ray crystallography.

The program offers two curricular options leading to the Bachelor of Science in Biochemistry. The biochemistry/biophysics option provides increased emphasis on chemistry, physics, mathematics, and physical biochemistry, and yields a minor in chemistry. The biochemistry/molecular biology option provides increased emphasis on molecular and cell biology, and yields a minor in molecular biology.

We expect that our graduating students will be able to: 1) demonstrate critical thinking by analyzing results generated in the lab, as well as from published papers, that address biological problems at the chemical, cellular, and organismal level; 2) demonstrate in-depth knowledge in Molecular Biosciences through the use of modern instrumentation and computers in support of their projects, including use of available databases for research; and 3) effectively communicate scientific information both in written form and oral presentations to colleagues and lay audiences.

At the graduate level, the school offers programs leading to the degrees of Master of Science in Biochemistry and Doctor of Philosophy (Biochemistry).

Biotechnology

Biotechnology is the application of a new level of understanding of organisms and biological processes. It uses modern molecular, computer, and engineering techniques to answer basic biological questions and to develop products and practices for use by society. Biotechnology will affect every aspect of human existence. The applications of biotechnology are broad and have already brought improved results in agriculture, human health, and environmental protection and restoration. Biotechnology enables industries to make new or better products with greater speed, efficiency and flexibility.

We expect that our graduating students will be able to: 1) demonstrate critical thinking by analyzing results generated in the lab, as well as from published papers, that address biological problems at the chemical, cellular, and organismal level; 2) demonstrate in-depth knowledge in Molecular Biosciences through the use of modern instrumentation and computers in support of their projects, including use of available databases for research; and 3) effectively communicate scientific information both in written form and oral presentations to colleagues and lay audiences.

At the graduate level, the school offers programs leading to the degrees of Master of Science in Genetics and Cell Biology and Doctor of Philosophy (Genetics and Cell Biology).

Genetics and Cell Biology

Genetics and cell biology are interdisciplinary sciences that are fundamental to all fields of modern biology. The program affords students the opportunity to study with scientists who represent a wide range of research interests in plant, animal, and microbial genetics and cell biology. Undergraduates who major in genetics and cell biology will be well prepared to work as high-level technicians in the biotechnology industry or in university and government laboratories. An undergraduate degree also prepares students for entry into professional schools related to medicine as well as into graduate school programs leading to the Master's and PhD degrees in a variety of areas in agriculture and basic science. Students who receive Master's and PhD degrees obtain positions in basic and applied genetics at universities, federal departments and laboratories, private industry, including biotechnology and plant and animal breeding, and in specialized medical research.

We expect that our graduating students will be able to: 1) demonstrate critical thinking by analyzing results generated in the lab, as well as from published papers, that address biological problems at the chemical, cellular, and organismal level; 2) demonstrate in-depth knowledge in Molecular Biosciences through the use of modern instrumentation and computers in support of their projects, including use of available databases for research; and 3) effectively communicate scientific information both in written form and oral presentations to colleagues and lay audiences.

At the graduate level, the school offers programs leading to the degrees of Master of Science in Genetics and Cell Biology and Doctor of Philosophy (Genetics and Cell Biology).
MICROBIOLOGY

Microbiology is both a basic and an applied science that studies microorganisms and their activities. It is concerned with their form, structure, reproduction, physiology, and identification. It includes the study of their distribution in nature, their relationship to each other and to other living things, their beneficial and detrimental effects on human beings, and the physical and chemical changes they make in their environment. Employment opportunities in industrial, government, hospital, and private laboratories and agencies are excellent for qualified graduates. Areas in which the unit is prepared to direct research include the biology of membranes, bioremediation, molecular genetics, molecular basis of cell-cell interactions and virulence, microbial differentiation, cellular and tumor immunology and the regulation of the immune response.

The Microbiology degree program offers options in general microbiology and medical technology, leading to the Bachelor of Science degree in Microbiology. Requirements for the general microbiology option and for the medical technology option are the same except that Biol 418 is required for the medical technology option. A one-year internship in an accredited school of medical technology is required after graduation for those interested in becoming certified medical technologists.

We expect that our graduating students will be able to: 1) demonstrate critical thinking by analyzing results generated in the lab, as well as from published papers, that address biological problems at the chemical, cellular, and organismal level; 2) demonstrate in-depth knowledge in Molecular Biosciences through the use of modern instrumentation and computers in support of their projects, including use of available databases for research; and 3) effectively communicate scientific information both in written form and oral presentations to colleagues and lay audiences.

At the graduate level, the school offers programs leading to the degrees of Master of Science in Microbiology and Doctor of Philosophy (Microbiology).

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

CERTIFICATION REQUIREMENTS:

A student must meet the following three requirements to be eligible to certify in a SMB major in biochemistry, biotechnology, genetics or cell biology and microbiology:

1) Complete Biol 106, Biol 107, Chem 105 and Chem 106, or transfer equivalents, with a minimum grade of C.
2) Earn a minimum cumulative GPA of at least 2.50
3) Earn a minimum of 24 semester hours.

Students must maintain a minimum cumulative GPA of 2.50 for all WSU courses to remain certified in a SMB degree program. A certified major who falls below the minimum requirements will be decertified according to Academic Regulation 56.

GRADUATION REQUIREMENTS:

A grade of C or better is required in all MBioS courses taken to meet graduation requirements. None of these courses may be taken pass/fail.

BIOCHEMISTRY - BIOCHEMISTRY/ MOLECULAR BIOLOGY REQUIREMENTS (120 HOURS)

A grade of C or better is required in all MBioS courses taken to meet graduation requirements. None of these courses may be taken pass/fail.

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<td>GenEd 110 [A] (GER)</td>
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<td>Math 171 [N] (GER)</td>
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<td>MBioS 413</td>
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<td>MBioS 466</td>
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<td>MBioS 494 [M]</td>
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<td>Electives</td>
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<td>MBioS 414</td>
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<td>Science Elective</td>
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Tier III Course [T] (GER) | 3 |
| Elective | 3 |

Footnotes

1 Science elective: 3 credits from MBioS 401, 404, 478, 498, 499, or Phys 466.

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<td>Biol 106 [B] (GER)</td>
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<td>Chem 105 [P] (GER)</td>
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<td>Engl 101 [W] (GER)</td>
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<td>GenEd 110 [A] (GER)</td>
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<td>Biol 107 [B] (GER)</td>
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<td>Math 140 [N] or 171 [N] (GER)</td>
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<td>MBioS 401</td>
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### BIOTECHNOLOGY REQUIREMENTS (120 HOURS)

A grade of C or better is required in all MBioS courses taken to meet graduation requirements. None of these courses may be taken pass/fail.

#### First Year

**First Term**
- Biol 106 [B] (GER) 4
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

**Second Term**
- Biol 107 [B] (GER) 4
- Chem 106 [P] (GER) 4
- GenEd 111 [A] (GER) 3
- Math 140 or 171 [N] (GER) 4

#### Second Year

**First Term**
- Arts & Humanities [H,G] (GER) 3
- Chem 345\(^1\) 4
- MBioS 301 4
- Phys 101 [P] (GER) 4

**Second Term**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- MBioS 303 4
- MBioS 304 [M] 3
- Phys 102 [P] (GER) 4

**Third Year**
- Complete Writing Portfolio

**Fourth Year**
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Lab Elective\(^2\) 2 or 3
- Lecture Elective\(^3\) 3 or 4

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**Footnotes**

\(^1\) Pre-med students and those interested in advanced degrees should take Chem 345, 346, and 348 (a one-year course in organic chemistry).

\(^2\) 3 hours from MBioS 410, 423, 426, 440, 450, 466, 478, 498, 499.

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### GENETICS AND CELL BIOLOGY REQUIREMENTS (120 HOURS)

A grade of C or better is required in all MBioS courses taken to meet graduation requirements. None of these courses may be taken pass/fail.

#### First Year

**First Term**
- Biol 106 [B] (GER) 4
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

**Second Term**
- Biol 107 [B] (GER) 4
- Chem 106 [P] (GER) 4
- GenEd 111 [A] (GER) 3
- Math 140 [N] or 171 [N] (GER) 4

#### Second Year

**First Term**
- Arts & Humanities [H,G] (GER) 3
- Chem 345\(^1\) 4
- MBioS 301 4
- Phys 101 [P] or 201 [P] (GER) 4

**Second Term**
- MBioS 303 4
- MBioS 304 [M] 3
- Social Sciences [S,K] (GER) 3

**Third Year**
- Complete Writing Portfolio

**Fourth Year**
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Lab Elective\(^2\) 2 or 3
- Lecture Elective\(^3\) 3 or 4

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**Footnotes**

\(^1\) Pre-med students and those interested in advanced degrees should take Chem 345, 346, and 348 (a one-year course in organic chemistry).

\(^2\) Lab electives: select one from MBioS 341, 402 [M], 430 [M], 478, 495, 498 (3 hrs), 499 (3 hrs). Students pursuing a BA minor may also select from Acctg 230, 231, Fin 325, or MgtOp 340.

\(^3\) Soc 331 is recommended, but not required.

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### MICROBIOLOGY AND MEDICAL TECHNOLOGY REQUIREMENTS (122 HOURS)

A grade of C or better is required in all MBioS courses taken to meet graduation requirements. None of these courses may be taken pass/fail.

#### First Year

**First Term**
- Biol 106 [B] (GER) 4
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

**Second Term**
- Biol 107 [B] (GER) 4
- Chem 106 [P] (GER) 4
- GenEd 111 [A] (GER) 3
- Math 140 [N] or 171 [N] (GER) 4

**Third Year**
- Arts & Humanities [H,G] (GER) 3
- Chem 345\(^1\) 4
- MBioS 301 4
- Phys 101 [P] or 201 [P] (GER) 4

**Fourth Year**
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Lab Elective\(^2\) 2 or 3
- Lecture Elective\(^3\) 3 or 4

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**Footnotes**

\(^1\) Pre-med students and those interested in advanced degrees should take Chem 345, 346, and 348 (a one-year course in organic chemistry).


\(^3\) Lecture elective: select one from Biol 325, 519, MBioS 413, 423, 426, 427, 440, 442, 450, 460.
Minors

Biochemistry

A minor in biochemistry requires 20 hours includingChem 345, 346, and 348 (a one-year course in organic chemistry).

Genetics and Cell Biology

A minor in genetics and cell biology requires 16 hours under the genetics and cell biology degree program at the 300-400-level, including MBioS 301 and 401. Additional credits may be selected from Biol 325, MBioS 402, 404, 423, 425, 426, 427, 478. 9 hours of upper-division work must be taken in residence at WSU or through approved education abroad or educational exchange courses. A grade of C or better is required in all course work for the minor.

Microbiology

A minor in microbiology requires a minimum of 17 credit hours including MBioS 301, 305, and 306, and the remaining at the 300-400-level selected from: MBioS 342, 410, 411, 426, 430, 440, 442, 444, 445, 446, 448, 450, 454, 491, 499. 9 hours of upper-division work must be taken in residence at WSU or through approved education abroad or educational exchange courses. A grade of C or better is required in all course work for the minor.

Molecular Biology

A minor in molecular biology requires 20 hours including the following courses: MBioS 301, 305, 303, 401; MBioS 304, 402, or 454; MBioS 404, 413, or 426. A grade of C or better is required in all course work for the minor. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through approved education abroad or educational exchange courses. A grade of C or better is required in all course work for the minor. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through approved education abroad or educational exchange courses. A student whose major is in the School of Molecular Biosciences cannot be granted a minor in molecular biology.

Pre-Genetic Counseling

A minor in pre-genetic counseling requires 19-23 hours including MBioS 301, 423, Phil 365, Psych 321, 440 or 444, 445, one of Math 360, Psych 311, Stat 212, or 412. A grade of C or better is required in all course work for the minor. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through approved education abroad or educational exchange courses.

Description of Courses

Molecular Biosciences Courses

MBioS


301 General Genetics 4 Prereq Biol 106 and 107; two semesters Chem. Principles of modern and classical genetics. Credit not normally granted for MBioS 301/Biol 301 and Biol 408.


304 [M] Introductory Biochemistry Laboratory 3 (1-6) Prereq MBioS 303 or c//. Basic biochemical techniques.

305 General Microbiology 3 Prereq Biol 106 and 107; Chem 345 or c//. Structure, function, nutrition, physiology, and genetics of microbes and their application to immunology, pathology, microbial diversity, and environmental microbiology.

306 General Microbiology Laboratory 2 (0-6) Prereq MBioS 305 or c//. Laboratory for MBioS 305.

320 [B] DNA and Society 3 Prereq one college-level course in biology. The role of DNA in natural processes and diseases; impact of biotechnology on health care, agriculture, industry, and our lives.

352 Microbial Ecology 3 Prereq Biol 106; Chem 345 or c//. Discussion of microbial behavior in nature and microbial activities influence on ecological balance.

360 [M] Cell and Molecular Laboratory 2 (0-6) Prereq MBioS 301; MBioS 303 or c//. One semester organic chemistry. Laboratory methods in cell biology, genetics and molecular biology.

401 Cell Biology 3 Prereq MBioS 301; MBioS 303. Cellular structure and function; membrane biochemistry and transport; cell-cell communication; regulation of cell cycle and apoptosis; cell signaling; cancer biology.

402 [M] General Genetics Laboratory 3 (1-6) Prereq MBioS 301. Basic principles of modern and classical genetics utilizing several species.

404 Molecular Genetics 3 Prereq MBioS 301; MBioS 305 or c//. Introduction of prokaryotic and eukaryotic genome organization and gene expression, modern molecular techniques, experimental approaches, genome and gene function and analyses.

410 Medical Microbiology 3 Prereq MBioS 305; MBioS 306. MBioS 404 or c//. Microbial pathogens and their relationship to disease.

411 Diagnostic Medical Bacteriology 2 (0-6) Prereq MBioS 410 or c//. Techniques and tests for the identification of bacteria pathogenic for humans.

413 General Biochemistry 3 Prereq MBioS 303; junior standing. Structure and function of proteins, nucleic acids and biological membranes; principles of enzymology; biochemical methodology.

414 General Biochemistry 3 Prereq MBioS 413. Metabolism of carbohydrates, proteins, fats, bioenergetics; photosynthesis; control of metabolic processes.

423 Human Genetics 3 Prereq MBioS 301. Exploration of individual and population genetics leading to critical discussion of current social, medical, and scientific issues.

424 Directed Problems in Cell Biology 1 Prereq MBioS 301 or 303; c//. Complementary course to MBioS 401.


426 Microbial Genetics 3 Prereq MBioS 301; 303. Genetics of bacteria, bacteriophages and plasmids; regulation of gene expression; genetic manipulation of microorganisms.

427 [M] Perspectives in Biotechnology 3 Prereq MBioS 301. Same as A S 488. Credit not granted for both MBioS 427 and 527.

430 [M] Combined Immunology and Virology Laboratory 3 (1-6) Prereq MBioS 305; MBioS 306; c//. MBioS 440 or 442. Fundamental principles in immunology including the cultivation and characterization of viruses using laboratory techniques.

440 Immunology 3 Prereq MBioS 305; organic chemistry. Principles of basic immunology. Credit not granted for both MBioS 440 and 540.
442 General Virology 3 Prereq MBioS 301; MBioS 303 or cc/; The biology of bacterial, animal, and plant viruses. Credit not granted for both MBioS 442 and 452.

444 Food Microbiology 3 Prereq MBioS 305; MBioS 306. Same as FSHN 416. Cooperative course taught by UI (FST and MMBB 416), open to WSU students.

445 Food Microbiology Laboratory 2 (0-6) Same as FSHN 417.

446 Epidemiology 3 Prereq junior standing. Study of diseases in human populations; concepts of etiology, disease rates, susceptibility and risk factors, screening for disease, and prevention.

447 Molecular Mechanisms in Microbiology 2 In-depth discussion of molecular mechanisms and different experimental approaches in microbiology. Cooperative course taught by UI (MMBB 450), open to WSU students.

448 Soil Microbiology and Biochemistry 3 (2-3) Prereq MBioS 101 or 201; SoilS 201. Same as SoilS 431.

450 Microbial Physiology 3 Prereq MBioS 303; MBioS 305 and 306. Basic microbial physiology and its relevance to the processes of applied microbiology. Credit not granted for both MBioS 450 and 550.


465 Principles of Biophysical Chemistry 3 Prereq MBioS 303; Math 140 or 171; Phys 102 or 202. Biochemical reactions and processes, molecular recognition, coupled reactions, enzyme catalysis, analysis of macromolecular structure by electrophoresis, sedimentation, viscosity, and spectroscopy.

466 Physical Biochemistry 3 Prereq MBioS 465, Math 172, Phys 202. Techniques for the study of biological structure and function; spectroscopy, magnetic resonance, diffusion, sedimentation, electron microscopy, diffraction and scattering. Credit not granted for both MBioS 466 and 566.


490 Special Topics in Molecular Biology V 1-2 May be repeated for credit. Prereq senior standing. Current topics discussed by experts in the field.

492 Senior Project in Genetics and Cell Biology 1 Prereq certified major in SMB; senior standing. Written paper and seminar presentation on laboratory research project.

494 Senior Project in Biochemistry 1 Prereq certified major in SMB; senior standing. Written paper and seminar presentation on laboratory research project.

495 Internship Training V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq MBioS 301, 303, or 305; by permission only. Experience in work related to specific career interests. S, F grading.

496 Senior Project in Microbiology 1 Prereq certified major in SMB; senior standing. Written paper and seminar presentation on laboratory research or library project.

498 Directed Research V 1 (0-3) to 4 (0-6) May be repeated for credit. Prereq MBioS 301 or 303. Introduction to laboratory research; requires written report and oral presentation.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Cell Biology 3 Prereq MBioS 301, 303, or graduate standing. Graduate-level counterpart of MBioS 401; additional requirements. Credit not granted for both MBioS 401 and 501. Cooperative course taught by WSU, open to UI students (Genet S 550).

503 Molecular Biology I 3 Prereq MBioS 301, 303, or graduate standing. DNA replication and recombination in prokaryotes and eukaryotes; recombinant DNA methods and host/vector systems; genome analysis; transgenic organisms.

504 Molecular Biology II 3 Prereq MBioS 301, 303, or graduate standing. Gene expression and regulation in prokaryotes and eukaryotes, including transcription, RNA processing, and translation; chromatin structure; DNA repair.

513 General Biochemistry I 3 Prereq MBioS 303, graduate standing. Graduate-level counterpart of MBioS 413; additional requirements. Credit not granted for both 413 and 513.

514 General Biochemistry II 3 Prereq MBioS 413; or graduate standing. Graduate-level counterpart of MBioS 414; additional requirements. Credit not granted for both 414 and 514. Cooperative course taught by WSU, open to UI students (MMBB 542).

523 Fundamentals of Oncology 3 Prereq MBioS 513. Same as P/T 572.

525 Advanced Topics in Genetics V 1 or 2 May be repeated for credit. Prereq MBioS 503. Recent research in selected areas of genetics.

526 Advanced Topics in Cell Biology V 1-3 May be repeated for credit; cumulative maximum 7 hours. Prereq MBioS 501. Current research in cell structure and function.

527 Perspectives in Biotechnology 3 Prereq MBioS 301 or graduate standing. Same as A S 588. Credit not granted for both MBioS 427 and 527.

528 Molecular and Cellular Reproduction 3 (2-2) State of the art concepts of the molecular, cellular, and physiological aspects of mammalian reproduction.

529 Selected Topics in Cell Biology 1 Prereq MBioS 401 or c// MBioS 501. Selected topics in cell biology using current literature.

532 Plant Transmission Genetics 3 Prereq MBioS 301, or graduate standing. Same as CropS 504.

535 Molecular Genetics of Plant and Pathogen Interactions 3 Prereq MBioS 301, 303. Same as PI P 535.

537 Plant Cell Biology 3 Prereq graduate standing. Same as Biol 537.

540 Immunology 3 Prereq MBioS 305; organic chemistry or graduate standing. Graduate-level counterpart of MBioS 440; additional requirements. Credit not granted for both MBioS 440 and 540. Cooperative course taught by WSU, open to UI students (MMBB 512).

541 Research Seminar 1 May be repeated for credit. Literature reviews and research reports.

542 General Virology 3 Prereq MBioS 301, 303 or cc/; organic chemistry or graduate standing. Graduate-level counterpart of MBioS 442; additional requirements. Credit not granted for both MBioS 442 and 542.

547 Advanced Topics in Microbiology V 1-3 May be repeated for credit. Prereq MBioS 550.

548 Selected Topics in Immunology & Virology 1 Prereq MBioS 440, 442, 540, 542, or c//. Selected topics in immunology and virology using the current literature. May be repeated for credit; cumulative maximum 2 hours.

549 Seminar in Immunology 1 Prereq MBioS 440 or graduate standing. Seminar series on advances in immunology. May be repeated for credit; cumulative maximum 2 hours.

550 Microbial Physiology 3 Prereq MBioS 303, MBioS 305 and 306, or graduate standing. Graduate-level counterpart of MBioS 450; additional requirements. Credit not granted for both MBioS 450 and 550.

554 Chromosome Structure and Function 3 Prereq MBioS 301 or graduate standing. Same as Crops 554.

561 Biochemical Signaling in Plants, Animals and Microorganisms 3 Prereq MBioS 513. New research on intra and extra cellular biochemical signaling, including communication in plants and hormone action in animals.

566 Physical Biochemistry 3 Prereq MBioS 465; Math 172; Phys 202; graduate standing. Graduate-level counterpart of MBioS 466; additional requirements. Credit not granted for both 466 and 566.

568 Advanced Topics in Biochemistry V 1-3 May be repeated for credit. Prereq MBioS 513 or c//. Recent research in selected areas of biochemistry.

571 Advanced Topics in Plant Biochemistry 3 Prereq MBioS 514; introductory botany. Biochemistry unique to plants; new research advances.

574 Protein Biotechnology 3 Prereq MBioS 513 or c//. Biotechnology related to the isolation, modification and large scale commercial production, patenting and marketing of useful recombinant proteins and products.
576 Advanced Molecular Techniques I 1 (0-3) Prereq MBioS 503 or c/. Modern laboratory technique in the sequencing of nucleic acids.

577 Advanced Molecular Techniques II 1 (0-3) Prereq MBioS 503 or c/. Modern laboratory techniques in the use of plasmids as cloning vehicles.

578 Bioinformatics 3 (2-3) Prereq MBioS 301, 303, or Cpt S 355; graduate standing. Graduate-level counterpart of MBioS 478; additional requirements. Credit not granted for both 478 and 578.

579 Molecular Biosciences Seminar 1 or 2 Required of all graduate students in molecular biosciences. May be repeated for credit; cumulative maximum 10 hours.

581 Seminar in Animal Physiology 1 Same as A S 450.

582 Seminar in Reproductive Biology 1 Prereq graduate standing. Same as A S 582. Cooperative course taught jointly by WSU and UI (Biol S 551). S, F grading.

593 Research Proposal 2 Written and oral presentation of an area in molecular biosciences. May be repeated for credit; cumulative maximum 4 hours.

596 Advanced Topics in Development V 1-3 Prereq Biol 321; MBioS 303 or 401. Same as Biol 596.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

Program in Molecular Plant Sciences

www.wsu.edu/molecular-plants

Clark 287

509-335-3412


Graduate study leading to degrees of Master of Science in Molecular Plant Sciences and Doctor of Philosophy is offered as an interdepartmental curriculum by graduate faculty from the Departments of Crop and Soil Science, Food Science and Human Nutrition, Electrical Engineering and Computer Science, Horticulture and Landscape Architecture, Molecular Biosciences, Plant Pathology, Biological Sciences, and the Institute of Biological Chemistry. The objectives of the program are to provide the graduate student with a broad knowledge in molecular plant sciences and with research experience in a chosen area within this discipline. Specialization includes cellular and subcellular physiology, the molecular biology and biochemistry of plant-related processes, photosynthesis and photorespiration, nitrogen fixation, phytchemistry, the physiology of vascular plants, metabolism, plant pathogen interactions, hormonal interactions and regulation of growth, crop production physiology, and physiological ecology as well as related areas in agriculture and biology.

Students entering the program must have completed their baccalaureate degree with training in one year each of elementary biology or botany, and physics, chemistry through one semester of organic chemistry and biochemistry, one semester each of molecular plant sciences and genetics, and mathematics (through calculus). Limited undergraduate deficiencies may be remedied by taking the appropriate courses upon enrollment in the graduate program on a provisional basis. Degree requirements for both the MS and PhD degrees include courses in molecular biology, advanced molecular plant sciences, plant morphology and anatomy, and metabolism. To meet the minimum requirements of core course credit in the Graduate School, elective courses are chosen as approved by the student's advisor and the supervising committee of graduate faculty. There is no foreign language requirement.

Policies and procedures of the Graduate School apply to all admissions. Interested students may direct their inquiries to molecular plant sciences or to any participating faculty member. Should the latter route be followed, preference for the Program in Molecular Plant Sciences must be indicated and, if possible, the research area of interest identified.

The program offers flexibility for students with varied backgrounds in chemistry, biochemistry, molecular plant sciences, molecular biology, botany, genetics, biology, and the agricultural sciences to pursue advanced training in molecular plant sciences, with independent study and original research in areas of the student's own interests as the single most important component. The interdisciplinary nature of the program assures the student of interaction with molecular plant scientists representing a wide range of research interests and provides the student with a broad choice of specialized facilities which are available in the cooperating academic units.

Students are typically supported by the program during the first academic year. Financial support during subsequent years will be managed by the administering academic unit. Participating faculty may provide support through individual grants and contracts. Every effort will be made to inform applicants of these opportunities.

Course requirements are drawn from existing courses offered by MPS and cooperating departments and programs. In addition, a seminar is held weekly during each semester.

Description of Courses

Molecular Plant Sciences Courses

MP5 515 Seminar in Molecular Plant Sciences 1 May be repeated for credit; cumulative maximum 4 hours. A cross-discipline seminar, including botany, crop and soils sciences, horticulture, plant pathology, and molecular plant sciences.

561 Biochemical Signaling 3 Prereq MBioS 513. Same as MBioS 561.

570 Advanced Topics in Molecular Plant Sciences 1 May be repeated for credit; cumulative maximum 3 hours. Oral presentation of a current research paper.

571 Research Proposal 2 May be repeated for credit; cumulative maximum 4 hours. Written and oral presentation of an area of molecular plant sciences.

587 Advanced Topics in Plant Biochemistry 3 Prereq MBioS 514; introductory botany. Same as MBioS 571.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master's Research, Dissertation and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation and/or Examination Variable credit. S, F grading.

School of Music

libarts.wsu.edu/music

Kimbrough 260

509-335-3898

Professor and Director of the School of Music, J. G. Berthiaume; Professors, C. Argersinger, G. Yasinitsky; Associate Professors, M. Arksay, D. Jarvis, D. Turnbull, J. Weick, L. West, H. Young; Assistant Professors, R. Hare, K. McCarthy, J. Parker, J. Savage, N. Wallin, J. Weiss; Clinical Assistant Professor, D. Hower, S. Converse, R. Pond, A. Yasinitsky; Instructors, R. Boden, J. Brunnett, H. Jarvis, R. Kiehn, M. Mielke, C. Mervin Robblee, T. Robblee, K. Savage, J. Schneider, S. Scott, D. Snider, A. Taylor.

The School of Music prepares students for careers in music with degrees in music education, performance, composition and interdisciplinary studies. The School promotes a lifelong passion for music in its students by developing their scholarly, intellectual, creative and technical abilities. Essential to fulfilling this mission is our understanding that each facet of the study of music culminates in the performance and creation of music. The focal emphases are supported by studies in musicianship including performing, listening, history, theory, composition and teaching. We value:

- conceptual understanding of musical components and processes
- continued practice in creating, interpreting, presenting, analyzing and evaluating music
- increasing understanding of various musical cultures and historical periods
• acquiring capacities to integrate musical knowledge and skills
• accumulating capabilities for independent work in the music professions

Performance Studies in Music

Performance studies are offered on several levels to meet the needs of music majors as well as those of students from the general university community. There are no additional fees or tuition charges for the use of practice facilities. The 100-level performance studies are open to any student without audition through class instruction. The 200-level denotes group or private instruction for advanced non-music majors by special permission of the department chair (audition required).

Individual instruction in performance studies is offered at the 300- and 400-level for music majors and, by special permission of the department chair, to advanced non-music majors who meet all requirements for music majors as listed below. All students enrolled in 200-400-level performance instruction are required to attend weekly convocation (student recital), attend recitals as required, participate in at least one approved music department ensemble, and take applied jury examinations at the end of each term. A small tuition charge is assessed per 200-400-level course, not dependent on total credits. Students enrolled in 300- and 400-level performance study must enroll in a music theory or music history course each semester until music core requirements have been completed. No student will be permitted to enroll in 300-400-level performance studies unless these criteria are met. In addition, each music major must pass the piano proficiency exam, as a precondition to upper-division standing.

Performance studies may not be taken on a pass-fail basis.

Bachelor of Arts

This program is designed to offer a broad musical understanding within a liberal arts background. We expect that our graduating students be able to: 1) demonstrate mastery of music theory (an understanding of organizational patterns of music and their interaction, and of musical forms and structures and the ability to employ this understanding in aural, verbal, and visual analyses); 2) competently perform on an instrument of choice (including voice) and effectively communicate on the literature for that instrument and for appropriate ensembles, and demonstrate a basic performance proficiency on the piano; 3) critically evaluate the history and development of music through the present time and place music in historical, cultural and stylistic contexts; 4) comprehend the basics of non-Western music and/or jazz, and demonstrate a rudimentary capacity to create derivative or original music both extemporaneously and in written form; and 5) work independently on a variety of musical problems by combining their capabilities in performance, analysis, composition and improvisation, and history and repertory.

Music Performance

This major offers professional preparation in music with specialization in performance. The curriculum is designed to prepare students to become professional performers in their respective major instrument or voice. Students following options in performance or composition are required to present an acceptable senior recital in the major performance medium (composition for composition majors). Students following options in performance are also required to present an acceptable junior recital in the major performance medium.

Music Education

This program offers professional preparation in music with specialization in music education. The curriculum is designed to prepare students as professional teachers of music. Students following any of the music education or elective studies options are required to present an acceptable senior half recital in the major performance medium. Students following any of the music education options must have a minimum GPA of 2.5 in all of the following areas: cumulative GPA, Professional Education Core with a C or better in each course, and academic major (and minor if any) with a C or better in each course. Students certifying as majors in any of the music education options must also certify as majors in the College of Education.

Master of Arts in Music

Please consult the current WSU Graduate Study Bulletin. For students pursuing the combined BM/MA with teacher certification in Music, please consult the department.

Normal progress in all music degree curricula requires enrollment during the freshman year in 300-level performance studies. Such enrollment requires an audition which is best completed during the semester (usually spring) prior to the student's matriculating in the university. Students who do not audition early must do so during the first week of classes in the term. Normal progress also assumes placement in 200-level music theory. Theory placement tests will be administered as part of the performance audition. Students who do not qualify for 300-level performance studies and 200-level theory studies as freshmen will usually require more semester and credit hours of performance studies to complete a degree than listed in this schedule of studies.

Certification Requirements

To certify as a major pursuing any degree in music, students must meet the following criteria:

Completion of 24 semester hours; cumulative GPA of 2.0; completion of 10 hours with a cumulative GPA of 2.0 and a grade of C or better in those courses selected: Mus 151, 152, 181, 182, 251, 252, 253, 254, and up to four credits of applied study; approval of the appropriate applied study area coordinator; [approval requires two semesters’ study as specified by each area: Keyboard at 300 level with grade of C or better, Brass and Percussion at 300 level with grade of B- or better, Woodwinds at 300 level with grade of B- or better, and Voice at 200 level with grade of B- or better]; completion of application available from department. Students not passing the upper-division exam after the second attempt will be decertified as music majors.

In addition the College of Education requires 2.5 GPA and C or better in each course listed for the major, minor and professional core, plus a 2.5 cumulative GPA, of students certifying in any of the Bachelor of Music in Music Education curricula.

As indicated in the requirements listed under the various majors and options for the Bachelor of Music degree and the Bachelor of Arts degree in Music, each student must satisfactorily complete all music courses with a minimum 2.5 GPA and a grade of C or better in each music course. Each student is required to pass the piano proficiency exam and the junior and/or senior qualifying exam, with the exception of those students enrolled in the Bachelor of Arts degree (the B.A. degree requires completion of MUS 182 with a C or better). Students must also complete the General Education Requirements plus those for the College of Liberal Arts.

BACHELOR OF ARTS IN MUSIC

(120 HOURS)

This four-year program is designed to meet the needs of students wishing a broad liberal arts background with a major in music. Of the total 120 credits required for a degree in this program, 70 credits are devoted to courses outside music, including the General Education Requirements. Non-music courses other than those used for the GERs must be at the 200-level or above. 40 credits of the 120 required for the degree must be in 300-400-level. Music credits beyond the required 50 credits in music add to the number of credits required in the degree. Other requirements include: C or better in all music courses; 2.5 music average; senior
qualifying exam; piano proficiency exam or grade of C or better in Mus 182.

### First Year

<table>
<thead>
<tr>
<th>First Term</th>
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<tbody>
<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>Mus 181 0 or 1</td>
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<tr>
<td>Mus 251 3</td>
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<td>Mus 252 1</td>
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<tr>
<td>Mus Ensemble 1</td>
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<tr>
<td>Mus Private Lessons</td>
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<tr>
<td>Science Elective (GER)</td>
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### Second Term

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<tbody>
<tr>
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### Second Year

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<tbody>
<tr>
<td>Communication Proficiency [C,W] (GER) 3</td>
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<td>GenEd 111 [A] (GER) 3</td>
</tr>
<tr>
<td>Math Proficiency [N] (GER) 3</td>
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<td>Mus 351 3</td>
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### Third Year

<table>
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<tr>
<td>200-400-level Non-Music Electives 6</td>
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<tr>
<td>Arts &amp; Humanities [H,G] Intercultural Studies [I,G,K] or Social Sciences [S,K] (GER) 3</td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER) 2</td>
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<td>Mus 360 [M] 3</td>
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### Fourth Year

<table>
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<td>First Term</td>
</tr>
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<td>Arts &amp; Humanities [H,G] (GER) 3</td>
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<td>Engl 101 [W] (GER) 3</td>
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<tr>
<td>GenEd 110 [A] (GER) 3</td>
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<tr>
<td>Mus 181 0 or 1</td>
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<td>Mus Ensemble 428-444 1</td>
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<td>Mus Private Lessons 2</td>
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<tr>
<th>Hours</th>
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<td>Second Term</td>
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<td>ComSt 102 [C] (GER) 3</td>
</tr>
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<td>GenEd 111 [A] (GER) 3</td>
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<tr>
<td>Math Proficiency [N] (GER) 3 or 4</td>
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<td>Mus 182 0 or 1</td>
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<tr>
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<tr>
<td>Mus Private Lessons 2</td>
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</tbody>
</table>

### Footnotes

1. Class piano credits not required for degree.
2. Fall only.
3. Spring only.

### BACHELOR OF MUSIC - BUSINESS OPTION (120 HOURS)

This four-year program is designed to meet the needs of students wishing professional preparation in music combined with studies in business. Students select one of several minors offered in the College of Business and Economics.

<table>
<thead>
<tr>
<th>Second Term</th>
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<tbody>
<tr>
<td>Business Minor Course 3</td>
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<td>Intercultural Studies [I,G,K] (GER) 3</td>
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<tr>
<td>Mus 353 3</td>
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<td>Mus 354 1</td>
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<tr>
<td>Mus Private Lessons 2</td>
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<td>Complete Writing Portfolio</td>
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### Third Year

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<thead>
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<tbody>
<tr>
<td>Mus 258 2</td>
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<tr>
<td>Mus 360 [M] 3</td>
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<td>Mus 428 or 435 1</td>
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<tr>
<td>Mus Private Lessons 2</td>
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<tr>
<td>Physical Sciences [P] (GER) 4</td>
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<tr>
<td>Secondary Applied or Mus 487 2</td>
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### Fourth Year

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<tr>
<td>Arts &amp; Humanities [H,G] Intercultural Studies [I,G,K] or Social Sciences [S,K] (GER) 3</td>
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<tr>
<td>Business Minor Courses 7</td>
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<td>Mus Ensemble 428-444 1</td>
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<td>Mus Private Lessons 2</td>
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<tr>
<td>300-400-level Mus Elective (not perform study) 3</td>
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### Second Term

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<tbody>
<tr>
<td>Mus 470 2</td>
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<td>Mus Ensemble 428-444 1</td>
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<tr>
<td>Mus Private Lessons, 400-level 2</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER) 3</td>
</tr>
<tr>
<td>Tier III Course [T] (GER) 3</td>
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<td>Business Minor Course 3</td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER) 3</td>
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<td>Mus 353 3</td>
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<td>Mus 359 3</td>
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<td>Mus Ensemble 428-444 1</td>
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<tr>
<td>Mus Private Lessons 2</td>
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<tr>
<td>Complete Writing Portfolio</td>
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### Footnotes

1. Class piano credits not required for degree.
2. Fall only.
3. Spring only.
Students must pass the proficiency exam, achieve a 2.5 GPA and a grade of C or better in all music courses. The three credits of 300-400-level music electives may not be in music private lessons or ensembles. Class piano credits are not required for the degree. The School of Electrical Engineering and Computer Science offers several minors. Criteria for certification of a minor includes completion of 60 credits and meeting other criteria, such as appropriate major placement. Of the four minors available, three require 16 credits and one requires 20 credits. However, all require math courses not listed in the minor itself but necessary as prerequisites to other courses. Consultation with the School of Electrical Engineering and Computer Science will provide students with details concerning math and physics. Students may use elective credits for additional math and other prerequisites.

**First Year**

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<tr>
<th>Term</th>
<th>Hours</th>
<th>Courses</th>
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<tbody>
<tr>
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<td>Engl 101 [W] (GER) 3</td>
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<td>GenEd 110 [A] (GER) 3</td>
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<td>Math 107 (if necessary) 0 or 4</td>
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<td>Mus 1811 0 or 1</td>
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<td>Mus Ensemble 428-444</td>
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<td>Mus Private Lessons</td>
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<td>Second Term</td>
<td></td>
<td>ComS 102 [C] (GER) 3</td>
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<td>GenEd 111 [A] (GER) 3</td>
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<td>Math [N] (GER) 4</td>
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<tr>
<td>Third Term</td>
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<td>EE/Cpt S Minor course 2</td>
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<td></td>
<td></td>
<td>Intercultural Studies [I,G,K] (GER) 3</td>
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<td></td>
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<td>Mus 35531 3</td>
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**Second Year**

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<td>Mus Private Lessons</td>
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**Third Year**

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<td>Physical Sciences [P] (GER) 4</td>
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**Fourth Year**

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<td>E or Cpt S Minor Course 2 or 4</td>
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<td>Tier III Course [T] (GER) 3</td>
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**Footnotes**

1 Class piano credits not required in degree.
2 Spring only.
3 Spring only.
4 Mus 360 and 361 fulfill the College of Liberal Arts [H,G,S,K,L] requirement.

**BACHELOR OF MUSIC - THEATRE OPTION (120 HOURS)**

This four-year program is designed to meet the needs of students wishing professional preparation in music combined with studies in theatre. This program offers specializations in music in combination with a minor in theatre.

Students following this option are required to present an acceptable senior half recital in the major performance medium.

Students must pass the piano proficiency exam, pass the senior qualifying exam, achieve a 2.5 GPA and a grade of C or better in all music classes. Class piano credits are not required for the degree. Certification of the theatre minor requires 90 credits. The theatre minor is a total of 20 credits.

**First Year**

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<tr>
<th>Term</th>
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<th>Courses</th>
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<td>Mus 1811 0 or 1</td>
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<td></td>
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<td>Complete Writing Portfolio</td>
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**Second Year**

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
<th>Courses</th>
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<tbody>
<tr>
<td>First Term</td>
<td></td>
<td>Arts &amp; Humanities [H,G] (GER) 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mus 257 or 2583</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mus 3605 1</td>
</tr>
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<td></td>
<td></td>
<td>Mus ensemble 428-444</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mus Private Lessons</td>
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<tr>
<td></td>
<td></td>
<td>Physical Sciences [P] (GER) 4</td>
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<td>Second Term</td>
<td></td>
<td>ComS 102 [C] (GER) 3</td>
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<td>Intercultural Studies [I,G,K] (GER) 3</td>
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<tr>
<td></td>
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<td>Mus 1822 0 or 1</td>
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<tr>
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<td>Mus 2533 3</td>
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<td></td>
<td>Mus 2544 1</td>
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<td>Mus Ensemble 428-444</td>
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<td>Mus Private Lessons</td>
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<tr>
<td>Third Term</td>
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<td>EE/Cpt S Minor course 2</td>
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<td>Intercultural Studies [I,G,K] (GER) 3</td>
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<td>Mus Private Lessons</td>
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**Third Year**

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<td>Arts &amp; Humanities [H,G] (GER) 3</td>
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<td>Mus 257 or 2583</td>
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<td></td>
<td>Mus 3605 1</td>
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<td>Mus ensemble 428-444</td>
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**Fourth Year**

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<td>Arts &amp; Humanities [H,G] (GER) 3</td>
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<td>Mus 257 or 2583</td>
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<td></td>
<td></td>
<td>Mus 3605 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mus 428</td>
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<td>Mus Private Lessons</td>
</tr>
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<td>Theat 367 [H] (GER) 3</td>
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**Second Term**

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<tr>
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<th>Hours</th>
<th>Courses</th>
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<tr>
<td>First Term</td>
<td></td>
<td>Musical Sciences [B] (GER) 4</td>
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<td>E or Cpt S Minor Course 3 or 7</td>
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<td>Mus 4702</td>
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<td>Mus Electives 300-400</td>
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<td>Mus Ensemble 428-444</td>
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<td>Tier III Course [T] (GER) 3</td>
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</tbody>
</table>

**Footnotes**

1 Class piano credits not required in degree.
2 Fall only.
3 Spring only.
4 Fall only, alternate years.
5 Mus 360 and 361 fulfill the College of Liberal Arts [H,G,S,K,L] requirement.
6 Spring, alternate years only.

**MUSIC COMPOSITION DEGREE (127 HOURS)**

This major offers professional preparation in music with specialization in composition. The curriculum
Music

is designed to prepare students in contemporary classical composition and allied fields.

Requirements include: senior qualifying exam; piano proficiency exam; 2.5 average in all music courses; C or better in all music courses; senior recital.

**First Year**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Mus 181</td>
<td>Mus Private Lessons</td>
<td>2</td>
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<tr>
<td>Mus 251</td>
<td>Mus Private Lessons</td>
<td>2</td>
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<tr>
<td>Mus 252</td>
<td>Mus Private Lessons</td>
<td>2</td>
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<tr>
<td>Mus Ensemble</td>
<td>Mus Private Lessons</td>
<td>2</td>
</tr>
<tr>
<td>Mus Private Lessons</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
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**Second Term**

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Communication Proficiency [C,W] (GER)</td>
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<td></td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<td></td>
</tr>
<tr>
<td>Mus 182</td>
<td>Mus Private Lessons</td>
<td>2</td>
</tr>
<tr>
<td>Mus 253</td>
<td>Mus Private Lessons</td>
<td>2</td>
</tr>
<tr>
<td>Mus 254</td>
<td>Mus Private Lessons</td>
<td>2</td>
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<td>Mus Ensemble</td>
<td>Mus Private Lessons</td>
<td>2</td>
</tr>
<tr>
<td>Mus Private Lessons</td>
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<td></td>
</tr>
<tr>
<td>Music Electives</td>
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</tr>
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</table>

**Footnotes**

1. Required if enrolled for applied music, but not required in degree; Class piano credits not required.
2. Fall only.
3. Chosen from Mus 428-444.
4. Spring only.
6. Fall, alternate year only.
7. Spring, alternate years only.

**MUSIC EDUCATION - BROAD ENDOREMENT OPTION (152 HOURS)**

Students following any teacher preparation option are required to present an acceptable senior half recital in the major performance medium.

Students following any teacher preparation option must have a minimum GPA of 2.5 in all of the following areas: cumulative GPA, Professional Education Core with a C or better in each course, and academic major (and minor if any) with a C or better in each course. Students must also certify as majors in the College of Education.

Students must pass the Piano Proficiency Exam, pass the senior qualifying exam, achieve a cumulative 2.5 GPA and a grade of C or better in all music classes, and a 2.5 GPA and a grade of C or better in all College of Education Professional Core courses. Class piano credits are not required for the degree. Instrumentalists must complete 4 credits in vocal performance studies (private lessons and/or ensemble) and vocalists must complete 4 credits of instrumental performance studies.

This option provides teacher certification in designated arts: music (choral, instrumental, and general). Requirements include: C or better in all music and education courses; 2.5 music average; 2.5 education average; 2.5 overall average; 4 credits vocal performance for instrumentalists; 4 credits instrumental performance for vocalists; senior qualifying exam, piano proficiency, solo half-recital. Approved performing groups: a minimum of 1 hour during each of 7 semesters, to include at least one semester of Mus 435 for instrumentalists and 428 for vocalists. Include a minimum of 2 hours in choral and 2 hours in instrumental performing groups.

**Footnotes**

1. Tier III Course [T] (GER) 3
2. Endorsement Option (152 HOURS) 4
3. Music 452 2
4. Music 456 3
5. Music 482 1
6. Music Ensemble (music elective) 1
7. Music Private Lessons 2
8. Music Electives 1
9. Tier III Course [T] (GER) 3

**Footnotes**

1. Required if enrolled for applied music, but not required in degree; Class piano credits not required.
2. Fall only.
3. Chosen from Mus 428-444.
4. Spring only.
6. Fall, alternate year only.
7. Spring, alternate years only.

**Second Year**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
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<tr>
<td>Biological Sciences [B] (GER)</td>
<td>4</td>
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<tr>
<td>Mus 256</td>
<td>Mus Private Lessons</td>
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<tr>
<td>Mus 353</td>
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<td>2</td>
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<tr>
<td>Mus 354</td>
<td>Mus Private Lessons</td>
<td>2</td>
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<tr>
<td>Mus 355</td>
<td>Mus Private Lessons</td>
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<td>Mus Ensemble</td>
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<tr>
<td>Mus Private Lessons</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Music Electives</td>
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</tbody>
</table>

**Footnotes**

1. Tier III Course [T] (GER) 3
2. Endorsement Option (152 HOURS) 4
3. Music 452 2
4. Music 456 3
5. Music 482 1
6. Music Ensemble (music elective) 1
7. Music Private Lessons 2
8. Music Electives 1
9. Tier III Course [T] (GER) 3

**Footnotes**

1. Required if enrolled for applied music, but not required in degree; Class piano credits not required.
2. Fall only.
3. Chosen from Mus 428-444.
4. Spring only.
6. Fall, alternate year only.
7. Spring, alternate years only.

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Footnotes

1. Tier III Course [T] (GER) 3
2. Endorsement Option (152 HOURS) 4
3. Music 452 2
4. Music 456 3
5. Music 482 1
6. Music Ensemble (music elective) 1
7. Music Private Lessons 2
8. Music Electives 1
9. Tier III Course [T] (GER) 3

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Footnotes

1. Required if enrolled for applied music, but not required in degree; Class piano credits not required.
2. Fall only.
3. Chosen from Mus 428-444.
4. Spring only.
6. Fall, alternate year only.
7. Spring, alternate years only.
### Second Term

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>EdPsy 468</td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>Mus 487†</td>
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<tr>
<td>Mus 494†</td>
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<tr>
<td>T &amp; L 469</td>
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<td>T &amp; L 470</td>
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<td>Tier III Course [T] (GER)</td>
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### Fifth Year

<table>
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<th>Hours</th>
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<tbody>
<tr>
<td>Mus 497</td>
<td>4</td>
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<tr>
<td>T &amp; L 415</td>
<td>12</td>
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**Footnotes**

1. Class piano credits not required in degree.
2. Fall only.
3. Spring only.
5. Fall, alternate year only.
6. Spring, alternate years only.
7. T & L 328 required for degree; Mus 455 required.

### MUSIC EDUCATION - CHORAL/GENERAL ENDORSEMENT OPTION (145 HOURS)

Students following any teacher preparation option are required to present an acceptable senior half recital in the major performance medium.

Students following any teacher preparation option must have a minimum GPA of 2.5 in all of the following areas: cumulative GPA, Professional Education Core with a C or better in each course, and academic major (and minor if any) with a C or better in each course. Students must also certify as majors in the College of Education. Students must pass the Piano Proficiency Exam, pass the senior qualifying exam, achieve a cumulative 2.5 GPA and a grade of C or better in all music classes, and a 2.5 GPA and a grade of C or better in all College of Education Professional Core courses. Class piano credits are not required for the degree. Vocalists must complete 4 credits of vocal performance studies.

This option provides teacher certification in designated arts: Music (choral and general). Requirements include: C or better in all music and education courses; 2.5 music average; 2.5 education average; 2.5 overall average; senior qualifying exam, piano proficiency, solo half-recital. Approved performing groups: a minimum of 1 hour during each of 7 semesters, to include at least one semester of Mus 428 for vocalists.

### First Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Mus 181†</td>
<td>0 or 1</td>
</tr>
<tr>
<td>Mus 251†</td>
<td>3</td>
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<td>Mus 252†</td>
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<td>Mus Ensemble</td>
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<td>Mus Private Lessons</td>
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<td>Psych 105 [S] (GER)</td>
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### Second Term

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<td>Math Proficiency [N] (GER)</td>
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<td>Mus 182†</td>
<td>0 or 1</td>
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<td>Mus Private Lessons</td>
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<tr>
<td>T &amp; L 300</td>
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### Second Year

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<td>Arts &amp; Humanities [H,G] (GER)</td>
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**Footnotes**

1. Class piano credits not required in degree.
2. Fall only.
3. Spring only.
5. Fall, alternate year only.
6. Spring, alternate years only.
7. T & L 328 required for degree; Mus 455 required.

### MUSIC EDUCATION - INSTRUMENTAL/GENERAL ENDORSEMENT OPTION (145 HOURS)

Students following any teacher preparation option are required to present an acceptable senior half recital in the major performance medium.

Students following any teacher preparation option must have a minimum GPA of 2.5 in all of the following areas: cumulative GPA, Professional Education Core with a C or better in each course, and academic major (and minor if any) with a C or better in each course. Students must also certify as majors in the College of Education.

Students must pass the Piano Proficiency Exam, pass the senior qualifying exam, achieve a cumulative 2.5 GPA and a grade of C or better in all music classes, and a 2.5 GPA and a grade of C or better in all College of Education Professional Core courses. Class piano credits are not required for the degree. Instrumentalists must complete 4 credits in instrumental performance studies (private lessons and/or ensemble).

This option provides teacher certification in designated arts: Music (instrumental and general). Requirements include: C or better in all music and education courses; 2.5 music average; 2.5 education average; 2.5 overall average; 4 credits instrumental performance; senior qualifying exam, piano proficiency, solo half-recital. Approved performing groups: a minimum of 1 hour during each of 7 semesters, to include at least one semester of Mus 435 for instrumentalists.

### First Year

<table>
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<tbody>
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<td>Engl 101 [W] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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</tr>
<tr>
<td>Mus 181†</td>
<td>0 or 1</td>
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<td>Mus 251†</td>
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<td>Mus 252†</td>
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<tr>
<td>T &amp; L 469</td>
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### Second Term

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>EdPsy 468</td>
<td>3</td>
</tr>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>Physical Science [P] (GER)</td>
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<tr>
<td>T &amp; L 470</td>
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### Fifth Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Mus 497</td>
<td>4</td>
</tr>
<tr>
<td>T &amp; L 415</td>
<td>12</td>
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**Footnotes**

1. Class piano credits not required in degree.
2. Fall only.
3. Spring only.
5. Fall, alternate year only.
6. Spring, alternate years only.
7. T & L 328 required for degree; Mus 455 required.

**Social Sciences [S,K] (GER) | 3**
MUSIC EDUCATION - WITHOUT TEACHING CERTIFICATE OPTION  (123 HOURS)

Students following any teacher preparation option are required to present an acceptable senior half recital in the major performance medium.

Students following any teacher preparation option must have a minimum GPA of 2.5 in all of the following areas: cumulative GPA, Professional Education Core with a C or better in each course, and academic major (and minor if any) with a C or better in each course. Students must also certify as majors in the College of Education. Since this option is likely to lead to enrollment in the MA in Music, students are advised that admission to graduate study requires a 3.0 cumulative GPA.

Students must pass the Piano Proficiency Exam, pass the senior qualifying exam, achieve a cumulative 2.5 GPA and a grade of C or better in all major and minor courses, and a 2.5 GPA and a grade of C or better in all College of Education Professional Core courses. Class piano credits are not required for the degree. Instrumentalists must complete 4 credits in vocal performance. Vocalists must complete 4 credits of vocal performance studies (private lessons and/ or ensemble) and vocalists must complete 4 credits of instrumental performance studies.

This option provides teacher certification in designated arts: Music (choral, instrumental, and general). Requirements include: C or better in all music and education courses; 2.5 music average; 2.5 education average; 2.5 overall average; 4 credits vocal performance for instrumentalists; 4 credits instrumental performance for vocalists; upper-division exam, piano proficiency, solo and recital. Approved performing groups: a minimum of 1 hour during each of 7 semesters, to include at least one semester of Mus 455 for instrumentalists and 428 for vocalists. Include a minimum of 2 hours in choral and 2 hours in instrumental performing groups.

This option provides professional preparation in music combined with studies in education. Students may complete teacher certification requirements after completion of this degree through further enrollment as undergraduate second degree candidates, enrollment as post-baccalaureate non-degree students, or as graduate students, each of which requires application for admission. Students planning to seek admission and enroll as graduate students should, at the beginning of their last semester of undergraduate study, complete the necessary form to count selected courses in the final undergraduate semester toward the graduate degree, up to a maximum of 6 credits.

First Year

**First Term**  
*Hours*  
Engl 101 [W] (GER)  
GenEd 110 [A] (GER)  
Mus 181  
Mus 251  
Mus 252  
Mus Ensemble 428-444  
Mus Private Lessons  
Psych 105 [S] (GER)  

**Second Term**  
*Hours*  
Engl 201 [W] (GER)  
GenEd 111 [A] (GER)  
Math Proficiency [N] (GER)  
Mus 182  
Mus 253  
Mus 254

Footnotes
1. Class piano credits not required in degree.  
2. Fall only.  
3. Spring only.  
5. Fall, alternate year only.  
6. Spring, alternate years only.
MUSIC PERFORMANCE - BRASS, PERCUSSION, STRINGS, WINDS OPTION  
(130 HOURS)

Requirements include: junior and senior qualifying exams; piano proficiency exam; 2.5 average in all music courses; C or better in all music courses; junior and senior recitals.

### First Year

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Term</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
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<td>Mus 181³, 251³, 252³, Mus Ensemble³, 360³, 361³, 481³, 482³, Mus Ensemble³</td>
</tr>
<tr>
<td>Mus 359³, 361³</td>
<td>3</td>
<td>Mus Private Lessons ³, 353³</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
<td>Mus General Electives ³, 360³</td>
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<tr>
<td>Mus Private Lessons ³</td>
<td>4</td>
<td>Tier III Course [T] (GER)</td>
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<td>Second Term</td>
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<tr>
<td>Mus 392 or 393 or 394⁴</td>
<td>4</td>
<td>Mus Private Lessons ³, 359³, 361³, 481³, 482³, Mus Ensemble³</td>
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### Second Year

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### Third Year

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<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>Mus 360 [M] (GER)³</td>
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### Fourth Year

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### Footnotes

1. Class piano credits not required.
2. Fall only.
3. Chosen from Mus 428-444.
4. Courses are taught alternate years.
5. Spring only.
7. Fall, alternate year only.
8. One credit of pedagogy is required in respective area: woodwind (392), Percussion (393) or Brass (394).

MUSIC PERFORMANCE - FLUTE, PERCUSSION, SAXOPHONE, STRING BASS, TRUMPET, AND VOICE (JAZZ STUDIES)  
(127 HOURS)

This option with an emphasis in jazz is available to students whose major instruments are flute, percussion, saxophone, string bass, trumpet, or voice. Requirements include: junior and senior qualifying exams; piano proficiency exam; 2.5 average in all music courses; C or better in all music courses; half and full recitals.

### First Year

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<tr>
<th>Term</th>
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<tr>
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<td>Mus 251³</td>
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<tr>
<td>Mus Ensemble³</td>
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<td>Mus 252³</td>
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<td>Mus Private Lessons ³</td>
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<td>Mus 252³</td>
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<td>Second Term</td>
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<td>Mus 257³</td>
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### Second Year

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### Fourth Year

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<tr>
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<tr>
<td>Biological Sciences [B] (GER)</td>
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<td>GenEd 110 [A] (GER)</td>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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<tr>
<td>Mus 362</td>
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### Footnotes

1. Fall only.
2. Class piano credits not required in degree.
3. Spring only.
4. Fall, alternate year only.
6. Spring, alternate years only.

MUSIC PERFORMANCE - KEYBOARD OPTION  
(127 HOURS)

Requirements include: Accompany a junior, senior, or graduate recital; piano proficiency exam; junior and senior qualifying exams; junior recital; senior recital; 2.5 average in all music courses; C or better in all music courses.

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<tr>
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<td>Science Elective (GER)</td>
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### MUSIC PERFORMANCE - KEYBOARD WITH ELECTIVE STUDIES IN PEDAGOGY OPTION (129 HOURS)

Requirements include: Accompany a junior, senior, or graduate recital; piano proficiency exam; junior and senior qualifying exams; junior recital; senior recital; 2.5 average in all music courses; C or better in all music courses.

#### First Year

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<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>First Term</td>
<td>Mus 351 (^1)</td>
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<tr>
<td>First Term</td>
<td>Mus 352 (^1)</td>
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<tr>
<td>First Term</td>
<td>Mus 441</td>
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<td>Mus Private Lessons</td>
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#### Second Term

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<td>Mus 354(^2)</td>
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<td>Mus 359(^2)</td>
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<td>Mus 441</td>
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<td>Mus 498</td>
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<td>Physical Sciences [P] (GER)</td>
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#### Third Year

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<td>Mus 435</td>
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<td>First Term</td>
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#### Fourth Year

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<tr>
<td>Secondary Instrument</td>
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#### Second Year

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#### Second Term

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<td>Math Proficiency [N] (GER)</td>
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<td>Mus 359(^2)</td>
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<td>Mus 441</td>
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<td>Mus 498</td>
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<td>Mus Private Lessons</td>
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#### Third Year

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#### Fourth Year

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<td>Biologica Sciences [B] (GER)</td>
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<td>Mus 481(^5)</td>
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<td>Mus 498</td>
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<td>Mus Private Lessons</td>
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### MUSIC PERFORMANCE - VOICE OPTION (130 HOURS)

Requirements include: junior and senior qualifying exams; piano proficiency exam; 2.5 average in all music courses; C or better in all music courses; junior and senior recitals.

#### First Year

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<td>Mus 181(^1)</td>
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<td>Mus 251(^2)</td>
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<tr>
<td>Mus 252(^2)</td>
</tr>
<tr>
<td>Mus 441</td>
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<tr>
<td>Mus 498 (^2)</td>
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<td>Mus Private Lessons</td>
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#### Second Year

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<td>Math Proficiency [N] (GER)</td>
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<td>Mus 354(^4)</td>
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<td>Mus 359(^4)</td>
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#### Third Year

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<td>Mus 360 [M] (^2)</td>
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**Footnotes**

1. Fall only.
2. Spring only.
4. Courses are taught alternate years.
5. Spring, alternate years only.
### Description of Courses

#### Music Courses

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<td>102 Piano</td>
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</tr>
<tr>
<td>103 Voice</td>
<td>2</td>
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<tr>
<td>151 Music Fundamentals I</td>
<td>3 Notation and performance of music fundamentals: pitch, rhythm, scales, key signatures, and intervals.</td>
</tr>
<tr>
<td>152 Music Fundamentals II</td>
<td>3 Prereq Mus 151. Notation and performance of music fundamentals: melody, rhythm, scales, intervals, key signatures, triads; preparatory for Mus 251.</td>
</tr>
<tr>
<td>153 [H] Musical Style in Composition</td>
<td>3 Exploration of predominantly western music through demonstrations, performances, lectures, concerts, and discussions.</td>
</tr>
<tr>
<td>160 [H] Survey of Music Literature</td>
<td>3 Exploration of predominantly western music through demonstrations, performances, lectures, concerts, and discussions.</td>
</tr>
<tr>
<td>163 [G] World Music</td>
<td>3 Exploration of music from a global perspective through demonstrations, performances, lectures, and discussion.</td>
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#### Second Term

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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>4</td>
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<td>Foreign Language</td>
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<td>Mus 465</td>
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#### First Term

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<th>Hours</th>
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#### Tier III Course [T] (GER) | 3 |

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### Footnotes

1. Class piano credits not required.
2. Fall only.
3. Chosen from Mus 428-444.
4. Spring only.
5. Fall, alternate year only.
6. Spring, alternate years only.
8. Courses are taught alternate years.

### Minors

#### Jazz Studies

Required courses: Mus 257, 258, 362, 457, 458, and one 3-credit Mus course; four credits from 438, 439, 440. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

#### Music Minor and Supporting Teaching Endorsements

Choose one of the following options: Option 1 includes Mus 151 or 152 and 2 credits from Mus 181, 182, 281 or 2 credits from Mus 102, 202, 302. Option 2 includes Mus 251 and 252. Both options also include Mus 160 or 161, and one course from Mus 265, 362, Mus 163, 363, 262 or Theat 367; 4 credits of performance studies, 4 credits performing groups; and 4 credits 300-400-level music electives. Also available are supporting teaching endorsements in music for students whose primary teaching endorsements are in other majors. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

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### 251 Materials and Structures of Music I 3

By examination. Overtones, melody, rhythm, intervals, tonality, modality, penta-scales, two-voiced counterpoint, analytical techniques, composition.

### 252 Applied Theory I 1 (0-3) By examination. Ear training, conducting, rhythmic reading, sight singing, keyboard, dictation.

### 253 Materials and Structures of Music II 3

Prereq Mus 251, 252. Writing, analysis of three- and four-voiced homophonic and contrapuntal music, diatonic emphasis, seventh chords, modulation.

### 254 Applied Theory II 1 (0-3) Prereq c// in Mus 253. Ear training, sight singing, keyboard.

### 256 Seminar in Composition 1 May be repeated for credit; cumulative maximum 4 hours. Prereq Mus 353 or c//. By interview only. Original writings in small forms.

### 257 Jazz Theory 2 Introduction to jazz theory; chord symbols, extended harmony, scales and modes, voicing, bass lines and substitutions.

### 258 Introduction to Jazz Improvisation 2 May be repeated for credit; cumulative maximum 4 hours. Introduction to jazz improvisation.

### 262 [H] Rock Music: History and Social Analysis 3 History and analysis of rock music related to its African American origins, its societal role, and its diverse development and impact.


### 275 Special Topics: Study Abroad 1-15 May be repeated for credit. S, F grading.

### 281 Class Piano III 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. Prereq Mus 182. By audition only. Principles, functional keyboard and improvisation.

### 301 Organ 2 (0-6)

### 302 Piano 2 (0-6)

### 303 Voice 2 (0-6) Prereq c// in Mus 431, 432, or by interview only.

### 304 French Horn 2 (0-6)

### 305 Trumpet 2 (0-6)

### 306 Trombone 2 (0-6)

### 307 Baritone 2 (0-6)

### 308 Tuba 2 (0-6)

### 309 Percussion 2 (0-6)

### 310 Violin 2 (0-6)

### 311 Viola 2 (0-6)

### 312 Violoncello 2 (0-6)

### 313 Contra Bass 2 (0-6)

### 314 Flute 2 (0-6)

### 315 Oboe 2 (0-6)

### 316 Clarinet 2 (0-6)

### 317 Bassoon 2 (0-6)

### 318 Saxophone 2 (0-6)
<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>393</td>
<td>Percussion Pedagogy</td>
<td>Mus 351</td>
<td>Pedagogy, methods and techniques for woodwind instruments; fundamental approaches to teaching percussion instruments.</td>
</tr>
<tr>
<td>394</td>
<td>Brass Pedagogy</td>
<td>Mus 351</td>
<td>Pedagogy, methods and techniques for woodwind instruments; fundamental approaches to teaching brass instruments.</td>
</tr>
<tr>
<td>401</td>
<td>Organ</td>
<td>Mus 253</td>
<td>Study of the organ, its history, and its use in contemporary music.</td>
</tr>
<tr>
<td>402</td>
<td>Piano</td>
<td>Mus 253</td>
<td>Study of the piano, its history, and its use in contemporary music.</td>
</tr>
<tr>
<td>403</td>
<td>Voice</td>
<td>Mus 253</td>
<td>Study of the voice, its history, and its use in contemporary music.</td>
</tr>
<tr>
<td>404</td>
<td>French Horn</td>
<td>Mus 253</td>
<td>Study of the French horn, its history, and its use in contemporary music.</td>
</tr>
<tr>
<td>405</td>
<td>Trumpet</td>
<td>Mus 253</td>
<td>Study of the trumpet, its history, and its use in contemporary music.</td>
</tr>
<tr>
<td>406</td>
<td>Trombone</td>
<td>Mus 253</td>
<td>Study of the trombone, its history, and its use in contemporary music.</td>
</tr>
<tr>
<td>407</td>
<td>Baritone</td>
<td>Mus 253</td>
<td>Study of the baritone, its history, and its use in contemporary music.</td>
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<tr>
<td>408</td>
<td>Tuba</td>
<td>Mus 253</td>
<td>Study of the tuba, its history, and its use in contemporary music.</td>
</tr>
<tr>
<td>409</td>
<td>Percussion</td>
<td>Mus 253</td>
<td>Study of the percussion instruments, their history, and their use in contemporary music.</td>
</tr>
<tr>
<td>410</td>
<td>Violin</td>
<td>Mus 253</td>
<td>Study of violin techniques, their history, and their use in contemporary music.</td>
</tr>
<tr>
<td>411</td>
<td>Viola</td>
<td>Mus 253</td>
<td>Study of viola techniques, their history, and their use in contemporary music.</td>
</tr>
<tr>
<td>412</td>
<td>Violoncello</td>
<td>Mus 253</td>
<td>Study of cello techniques, their history, and their use in contemporary music.</td>
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<tr>
<td>413</td>
<td>Contrabass</td>
<td>Mus 253</td>
<td>Study of double bass techniques, their history, and their use in contemporary music.</td>
</tr>
<tr>
<td>414</td>
<td>Flute</td>
<td>Mus 253</td>
<td>Study of flute techniques, their history, and their use in contemporary music.</td>
</tr>
<tr>
<td>415</td>
<td>Oboe</td>
<td>Mus 253</td>
<td>Study of oboe techniques, their history, and their use in contemporary music.</td>
</tr>
<tr>
<td>416</td>
<td>Clarinet</td>
<td>Mus 253</td>
<td>Study of clarinet techniques, their history, and their use in contemporary music.</td>
</tr>
<tr>
<td>417</td>
<td>Bassoon</td>
<td>Mus 253</td>
<td>Study of bassoon techniques, their history, and their use in contemporary music.</td>
</tr>
<tr>
<td>418</td>
<td>Saxophone</td>
<td>Mus 253</td>
<td>Study of saxophone techniques, their history, and their use in contemporary music.</td>
</tr>
<tr>
<td>426</td>
<td>Symphony Orchestra</td>
<td>Mus 253</td>
<td>Study of the symphony orchestra, its history, and its use in contemporary music.</td>
</tr>
<tr>
<td>427</td>
<td>Wind Symphony</td>
<td>Mus 253</td>
<td>Study of the wind symphony, its history, and its use in contemporary music.</td>
</tr>
<tr>
<td>428</td>
<td>Opera Workshop</td>
<td>Mus 253</td>
<td>Study of opera, its history, and its use in contemporary music.</td>
</tr>
<tr>
<td>429</td>
<td>University Singers</td>
<td>Mus 253</td>
<td>Study of choral singing, its history, and its use in contemporary music.</td>
</tr>
<tr>
<td>430</td>
<td>Chamber Ensembles</td>
<td>Mus 253</td>
<td>Study of chamber music, its history, and its use in contemporary music.</td>
</tr>
</tbody>
</table>
465 Seminar in Major Performance Literature 2 May be repeated for credit; cumulative maximum 6 hours. Prereq Mus 351 or c/. Survey/performance of solo and chamber literature for voice, keyboard, strings, winds, brass, percussion. Credit not granted for both MUS 465 and 565.

467 Marching and Jazz Techniques 1 Prereq Mus 253. In-depth experience with planning, designing and arranging marching band shows and jazz ensemble concerts using traditional and contemporary techniques.

470 Marketing and Promotion for the Performing Arts 2 (1-3) Components and techniques used in the marketing and promotion of the performing arts and the entertainment industry.

475 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

480 Instrumental Music Education 3 Prereq certified music major. Philosophies, administration, organization, materials and methods for instrumental music education K-12. Credit not granted for both Mus 480 and 580.

481 Fundamentals of Conducting 1 (0-3) Prereq Mus 254 or c/. Basic techniques, patterns, preparations and releases; musical styles and score reading for beginning conductors.

482 Instrumental Conducting 1 (0-3) Prereq Mus 481. Score preparation of orchestra and band literature; transpositions; clefs; rehearsal techniques for instrumental ensembles.

483 Choral Conducting 1 (0-3) Prereq Mus 481. Conducting choral and vocal jazz ensembles.

487 String Techniques 2 (0-6) String techniques, materials and methods for music education majors.

488 Choral Methods and Materials I 2 (0-6) Prereq Mus 481. Preparation in the administration of choral programs from auditions to the selection and rehearsal of choral literature. Credit not granted for both Mus 488 and 588.

489 Choral Methods and Materials II 2 Prereq Mus 488. Development of skills in choral arranging, curriculum construction, research, and job placement. Credit not granted for both Mus 489 and 589.

490 General Music Material/Methods 4 (3-2) Prereq Mus 491. Materials and methods for general music education majors; multiculturalism, collaboration, developmental curriculum and research issues; addressing national standards; observations. Credit not granted for both Mus 490 and 590.

491 Voice Pedagogy 2 (1-3) Anatomy of the singing process; methodology of teaching voices in various learning and teaching styles. Credit not granted for both Mus 491 and 591.

493 Wind and Percussion Techniques I 2 (0-6) Prereq Mus 481. Brass, woodwind, and percussion techniques for music education majors.

494 Wind and Percussion Techniques II 2 (0-6) Prereq Mus 493. Brass, woodwind and percussion techniques; elementary instrument conducting for music education majors.

496 Topics in Music V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq permission of program coordinator. Advanced seminar with required projects in music history, literature, pedagogy, theory, composition or performance.

497 Directed Student Teaching in Music V 4-16 Prereq make application and pay certification fees; complete all other coursework for the degree and teacher certificate; receive fingerprinting clearance from Washington state Patrol, FBI and Office of Professional Practices; maintain 2.5 GPA overall and in endorsement area and professional core courses. Placement by interview only at approved sites. Supervised teaching in public schools, including seminars reflecting on effective teaching. S, F grading.

498 Piano Pedagogy Practicum 2 May be repeated for credit; cumulative maximum 6 hours. Prereq applied piano study. Piano Pedagogy Practicum 2 Supervised teaching in Piano Preparatory Lab School, including lesson planning and meetings with coordinator for critiques and suggestions. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Organ 2 (0-6)
502 Piano 2 (0-6)
503 Voice 2 (0-6) Prereq c// in Mus 431, 432, or by interview only.

504 French Horn 2 (0-6)
505 Trumpet 2 (0-6)
506 Trombone 2 (0-6)
507 Baritone 2 (0-6)
508 Tuba 2 (0-6)
509 Percussion 2 (0-6)
510 Violin 2 (0-6)
511 Viola 2 (0-6)
512 Violoncello 2 (0-6)
513 Contrabass 2 (0-6)
514 Flute 2 (0-6)
515 Oboe 2 (0-6)
516 Clarinet 2 (0-6)
517 Bassoon 2 (0-6)
518 Saxophone 2 (0-6)
519 Secondary Performance Study 1 or 2 May be repeated for credit; cumulative maximum 6 hours. Prereq bachelor's degree in music. Instruction on instruments or voice other than major performing medium.

522 Graduate Recital 2 May be repeated for credit; cumulative maximum 4 hours. Private screening and public performance as required within each performance emphasis.

528 Opera Workshop 1 (0-4) By audition only. Graduate-level counterpart of Mus 428; additional requirements.

531 Concert Choir 1 (0-4) By audition only. Graduate-level counterpart of Mus 431; additional requirements.

532 Vocal Ensembles 1 (0-4) By audition only. Graduate-level counterpart of Mus 432; additional requirements.

534 Symphony Orchestra 1 (0-4) By audition only. Graduate-level counterpart of Mus 434; additional requirements.

535 Chamber Ensembles 1 (0-4) By audition only. Graduate-level counterpart of Mus 435; additional requirements.

537 Wind Symphony 1 (0-4) Graduate-level counterpart of Mus 437; additional requirements.

538 Jazz-Lab Band 1 (0-4) By audition only. Graduate-level counterpart of Mus 440; additional requirements.

541 Accompanying 1 (0-4) Graduate-level counterpart of Mus 441; additional requirements.

550 Seminar in Analysis 2 May be repeated for credit; cumulative maximum 4 hours. Prereq senior or graduate standing. Applications of analytical techniques to develop a basis for musical understanding and interpretation.

553 Seminar in Music Theory 2 May be repeated for credit; cumulative maximum 4 hours. Prereq senior or graduate standing.

556 Graduate Seminar in Advanced Composition V 2 (1-2) or 3 (1-4) May be repeated for credit; cumulative maximum 10 hours. Prereq by interview only. The creation of works for either traditional acoustic ensembles or electro-acoustic media.

559 Seminar in Advanced Jazz Composition V 1-3 Prereq Mus 457 or permission. Graduate-level counterpart of Mus 459; additional requirements. Credit not granted for both Mus 459 and 559.

560 Introduction to Graduate Studies in Music 2 Prereq senior or graduate standing. Required of all graduate students in music. Basic bibliographic and research techniques; written presentations related to area of emphasis.

561 Seminar in Literature of 20th Century Music 2 Prereq senior or graduate standing. Impressionism, expressionism, neoclassicism, neoromanticism, jazz and recent electronic music.

562 Symphonic Literature 2 Symphony orchestra and symphonic form from its beginning to modern times studied from the score.
509-335-6166


Department of Natural Resource Sciences

natural-resources.wsu.edu

Johnson Hall 115

565 Seminar in Major Performance Literature 2 May be repeated for credit; cumulative maximum 6 hours. Graduate-level counterpart of MUS 465; additional requirements. Credit not granted for both MUS 465 and 565.

566 Seminar in Music History 2 May be repeated for credit; cumulative maximum 6 hours. Prereq senior or graduate standing. Various historic periods and composers.

575 Advanced Conducting 2 or 3 May be repeated for credit. By audition only. Rehearsing orchestras, bands, and choruses. Public performance may be required.

580 Instrumental Music Education 1 Graduate counterpart of Mus 480; additional requirements. Credit not granted for both Mus 480 and 580.

586 Seminar in Piano Pedagogy 2 Prereq Mus 502 or c/. Materials and methods of teaching experiences.

588 Choral Methods and Materials I 2 (0-6) Prereq senior or graduate standing. Preparation in the administration of choral programs from auditions to the selection and rehearsal of choral literature.

589 Choral Methods and Materials II 2 Prereq Mus 588. Graduate-level counterpart of Mus 489; additional requirements.

590 General Music/Materials/Methods 4 (3-2) Prereq senior or graduate standing. Graduate-level counterpart of Mus 490; additional requirements. Credit not granted for both Mus 490 and 590.

591 Vocal Pedagogy 2 (1-3) Prereq graduate standing. Graduate-level counterpart of Mus 491; additional requirements. Credit not granted for both Mus 491 and 591.

596 Topics for Music V 1-4 Varying subjects offered at graduate level.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

Natural resources are the ultimate basis for much of the environmental quality, social well being and economic status in the State of Washington and the world. Issues and concerns surrounding natural resources are of extraordinary importance as society strives to both sustain and balance the various ecological, socioeconomic and aesthetic values provided by natural resources and ecosystems. Given these facts, the mission of the Department of Natural Resources at WSU is to advance and impart knowledge of ecosystems and natural resources, including their attributes and functions; their ecological and societal values; and their management in an ecologically, socially and economically sound, sustainable manner.

Our programs reflect and integrate the breadth of disciplines and professions comprising the Natural Resource Sciences. Forestry and Wildlife Ecology are represented in this department, plus coursework in biophysical and social sciences. Our programs also demonstrate departmental dedication to positive working/learning environments that reflect and foster valuing, understanding and respect of human diversity in the broadest sense.

We expect our graduates will (1) have the educational background to recognize and appreciate the broad economic, sociological and ecological issues and the implications of proposed actions; (2) have the professional education that enables them to recognize problems, develop and evaluate alternative actions; (3) have the ability in unfamiliar situations to recognize problems, formulate and evaluate alternatives using established scientific philosophy/methodology; (4) recognize the need for continued personal and professional development; (5) be able to communicate effectively to a variety of audiences; (6) have an appreciation of the scientific and historic pressures that have contributed to today’s attitudes and status of natural resources; and (7) have an appreciation of the basic stewardship ethic that is inherent in the natural resource professions. In addition to its traditional focus on undergraduate and graduate education the department is focused on basic and applied research, and extension and continuing education. The research, extension, and continuing education programs promote the responsible stewardship of Washington’s natural resources (sustained supply of natural resources such as fiber, and other products and values that promote the quality of life of Washington rural and urban populations.

There are a variety of career options such as work with state/federal land management or regulatory agencies, municipal or county government, public interest groups, natural resource industries, private land management, the consulting industry, and research/development in either the private or public sectors. Graduates may work as foresters, wildlife biologists, information specialists, game managers, consultants, and researchers in a variety of roles in developing countries. In addition, with further education our graduates are involved in environmental education in grade schools and high schools, in the legal profession, and in natural resource law enforcement.

The structure of the undergraduate curriculum is such that it is very feasible (with some additional time) to pursue either dual natural resource majors or a major in one field and minor in another natural resource field. The department offers disciplinary minors in forestry and wildlife available to all students, plus a general natural resource minor available to non-natural resource majors.

Student chapters of professional societies (Society of American Foresters and The Wildlife Society) provide out of class opportunities for students to interact with each other socially and professionally with the faculty and other professionals. Faculty contacts with many of the employing organizations and interaction with career services on campus help students obtain summer and permanent employment, as well as internship and cooperative education opportunities in their chosen field.

Facilities such as the department’s undergraduate project laboratory; various teaching and research laboratories; bear research facility; animal holding facilities, greenhouses and grasslands/woodlands at the E.H. Steffen Center; the Hudson Biological Reserve at Smoot Hill; the Kramer/Palouse Natural Area; the Ownbey Herbarium; and the 12,000-acre Colocumb multiple-use area provide students with access to the facilities and technologies needed to develop competence in their chosen professions. These facilities and the close proximity of natural forest, rangeland and aquatic ecosystems to the Pullman campus provide significant opportunities for field and experiential learning to natural resource science students.

Majors in Natural Resource Sciences

Students pursuing the BS in Natural Resource Sciences must major in one (or more) of these areas: Forestry, Wildlife Ecology, and Natural Resources. All majors share a part of basic science and General Education Requirements and a core of natural resource courses. The Natural Resource Core is composed of a broad spectrum of courses designed to expose students to a variety of natural resource disciplines, concepts and philosophies. It contains coursework in the areas of measurements, social and economic dimensions of natural resources, natural resource ecology, plant identification and ecology, wildlife ecology/management, and natural resource planning. In addition, each major has a core of courses designed to meet the requirements of the discipline and/or professional area. Each major also includes options which enable students to further specialize their education.

All courses that are department requirements must be taken for a letter grade, including those identified as their respective options. If courses are taken that are above those required, they may be taken pass/fail as an exception with approval by the department chair.

Forestry Major

The Forestry Major is designed to provide students with the educational basis for successfully pursuing a professional career in forestry. This program is fully accredited by the Society of American Foresters.

Each forestry student, in addition to completing the university GERs, basic science requirements and natural resource core takes a core of forestry classes in such areas as forest measurements/remote sensing, silviculture, harvesting, soils, watershed and range management. Each student also selects a professional option. The two Forestry Options are Forest Management and General. Each student is expected to complete at least 20 hours of the core of forestry courses, and the Forestry Management option provides a student with
an understanding of the underlying principles and techniques used in forest management. Students completing the forest management option meet the qualifications of the US Office of Personnel Management for forester. The directed studies option provides a student with the opportunity to develop a professional program that will meet individual career goals. For example, students interested in the business aspects of forestry may complete a business minor under the auspices of the directed studies option; students interested in wildlife may take additional courses in wildlife ecology or complete a minor in wildlife ecology.

**Natural Resource Major**

The Natural Resource Major is offered for students interested in biological, physical, or socioeconomic aspects of natural sciences that either extend beyond traditional disciplinary boundaries or which represent areas of specialization not encompassed by our other majors. This is the most flexible of our majors, offering exceptional opportunities for tailoring (in consultation with academic advisors) of courses/curricula to match individual student interests and needs within the realm of natural resource sciences.

In addition to university GERs, basic science courses and the natural resource common core, students complete a major core composed of a limited number of courses in the areas of soil science, conservation biology, ecology and social sciences. Based upon area of primary interest and in addition to the major core, each student also will complete an option composed of approved elective courses. Options are designed to provide specialization in specific areas of natural resource sciences, such as natural resource policy/social science, wetland/aquatic resources, and directed studies which provides students working with their advisors to select courses that focus upon an aspect of natural resource sciences not represented by the other options. Lists of approved electives for each of these options are available from the department.

**Wildlife Ecology Major**

The wildlife ecology major provides students with a basic background in the sciences plus additional courses emphasizing the management and scientific aspects of wildlife ecology. Students are therefore prepared to pursue a variety of careers focusing upon either/both wildlife biology or wildlife management. The core requirements plus proper selection of approved wildlife electives may allow majors to meet the US Office of Personnel Management requirements for wildlife biologist, wildlife refuge manager, general biologist, and zoologist. Through judicious use of electives a student can also meet additional civil service requirements for fish biologist and range conservationist. Wildlife students can further individualize and often enhance their professional credentials by minoring in another subject such as criminal justice, computer science, or forestry. Students with a primary interest in veterinary sciences and wildlife may jointly pursue their interests via the pre-vet school option.

In addition to university GERs, basic science courses and the natural resource common core, students in this major complete a core of wildlife classes emphasizing wildlife ecology, management, nutrition, population ecology, and conservation biology. Opportunities for specialization and pursuit of individual student interests beyond the wildlife core are provided through completing either the pre-vet school option, or a directed studies option wherein students may select approved electives in the areas of habitat ecology, aquatic ecology, animal ecology and conservation biology.

**Pre-Vet Option in Wildlife Ecology**

The pre-veterinary bachelors program in natural resource sciences (NRS) with a major in wildlife ecology offers students the opportunity to combine an interest in individual animal health with the challenge of managing wild animal populations and environments. The curriculum provides a background in chemistry through introductory biochemistry, genetics and cell biology and introductory courses in physics and the quantitative sciences. The natural resource core curriculum and the wildlife ecology curriculum provide a basic foundation for the management of wildlife species and their environment. Elective courses in ornithology, mammalogy, toxicology, reptiles and amphibians and fisheries provide students with the ability to focus their attention on selected biological topics. The NRS program provides students with the necessary academic background and GPA to be academically competitive in obtaining admission to the Veterinary program at the completion of the junior or senior year.

**Natural Resource Sciences Honors Students**

The Honors College and the natural resource science curricula provide students with an opportunity to acquire an exceptional breadth of knowledge and technical skills. The oral and written skills, in particular, provide graduates of the Honors College and the natural resource sciences with the communication skills that are highly prized in the public and private sector. The synergism of knowledge associated with the Honors and the NRS curricula provide students not only with the ability to view natural resource problems in the context of social and historic processes, but also to seek technical solutions that may be more socially and culturally compatible in the modern world.

**Transfer Students**

Transfer students should plan to complete the basic required courses in English composition, chemistry, speech, biological sciences, mathematics, microeconomics, social sciences, and arts and humanities by the end of their sophomore year. Students may be granted credit for equivalent technical courses taken at other academic institutions. Refer to WSU Transfer Guides for Community Colleges, available through the web, for details. It is suggested that students planning on transferring contact the department regarding priority of transfer courses.

**Graduate Programs**

Graduate programs provide students not only with an increased knowledge of the scientific basis of their profession but also with a more complete understanding of the holistic nature of successful natural resource management and science. The department offers the MS in Natural Resource Sciences (thesis-based), MS in Natural Resources (non-thesis). The department in conjunction with the environmental science and regional planning program offers a PhD in Environmental and Natural Resource Sciences. Under the broad rubric of each graduate degree, students may specialize in a variety of biological, physical or social science aspects of natural resources by virtue of either/bot advanced coursework or graduate research. Graduate curricular requirements are flexible; hence, students with preceding education in both natural resource and related fields are encouraged to apply. To be accepted to graduate study in natural resource sciences, applicants must (1) meet the Graduate School’s minimum admission requirements, (2) complete the department’s supplemental application form, (3) have at least one member of the department’s faculty willing to serve as the student’s major advisor. Students interested in graduate study in natural resource sciences should consult the WSU Graduate Bulletin and directly contact the department for further information on opportunities and requirements.

**Schedules of Studies**

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

**FOREST - DIRECTED STUDIES OPTION (121 HOURS)**

This Directed Studies option provides a student with the opportunity to develop a professional program that will meet individual career goals.

**First Year**

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biol 106 or Biol 120 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
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<tr>
<td>Math 107</td>
<td>4</td>
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<td>NATRS 100</td>
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**Second Term**

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<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>Biol 106 [B] or 107 [B] (GER)</td>
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<tr>
<td>Chem 101 [P] or 105 [P] (GER)</td>
</tr>
<tr>
<td>Econ 101 [S] (GER)</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<td>Intercultural Studies [L,G,K] (GER)</td>
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**Second Year**

<table>
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<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>NATRS 204</td>
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<tr>
<td>NATRS 300</td>
<td>4</td>
</tr>
<tr>
<td>NATRS 301</td>
<td>3</td>
</tr>
<tr>
<td>Engl 201 [W], H D 205 [C], or ComSt 102 [C] (GER)</td>
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**Second Term**

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<tbody>
<tr>
<td>NATRS 302</td>
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<tr>
<td>NATRS 314</td>
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<tr>
<td>NATRS 330</td>
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<tr>
<td>NATRS 374 or SoilS 474</td>
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Complete Writing Portfolio

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NATRS 374 or SoilS 474

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NATRS 374 or SoilS 474
### Third Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Directed Studies Option course(^1)</td>
<td>6</td>
</tr>
<tr>
<td>NATRS 410 or 321 (both required)</td>
<td>3</td>
</tr>
<tr>
<td>Stat 212</td>
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<tr>
<th>Second Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
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<tr>
<td>Directed Studies Option Course(^1)</td>
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<tr>
<td>NATRS 450 [M]</td>
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<tr>
<td>NATRS 460</td>
<td>3</td>
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<tr>
<td>Restricted Math Elective(^2)</td>
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### Fourth Year

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<tr>
<th>First Term</th>
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<tbody>
<tr>
<td>Directed Studies Option course(^1)</td>
<td>3</td>
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<tr>
<td>NATRS 305</td>
<td>3</td>
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<tr>
<td>NATRS 321 or 410 (both required)</td>
<td>3</td>
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<tr>
<td>SoilS 201</td>
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<tr>
<th>Second Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Directed Studies Option course(^1)</td>
<td>3</td>
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<tr>
<td>NATRS 414 [M]</td>
<td>3</td>
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<tr>
<td>NATRS 438</td>
<td>3</td>
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<tr>
<td>NATRS 454 [M]</td>
<td>3</td>
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<tr>
<td>Tier III Course [T] (GER)</td>
<td>3</td>
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</tbody>
</table>

**Footnotes**

\(^1\) In the Directed Studies Option, students in consultation with their advisor, select 12 additional hours, 9 of which must be at the 300-400 level. Students interested in business should consult the College of Business and Economics.

\(^2\) One from: Ag Ec 409; Math 140, 171, 202; Stat 410, 412, 422.

### Forestry - Forest Management Option (120 Hours)

This forest management option provides a student with an understanding of the underlying principles and techniques used in forest management. Students completing the forest management option meet the qualifications of the US Office of Personnel Management for forester.

<table>
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<tr>
<th>First Year</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biol 120 or 106 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Eng 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
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<tr>
<td>Math 107</td>
<td>4</td>
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<tr>
<td>NATRS 100</td>
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<tr>
<th>Second Year</th>
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<tr>
<td>Biol 106 [B] or 107 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 101 [P] or 105 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Econ 101 [S] (GER)</td>
<td>3</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
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### Second Year

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<th>First Term</th>
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<tr>
<td>Biol 106 [B] (GER)</td>
<td>4</td>
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<tr>
<td>Biol 107 [B] or 120 [B] (GER)</td>
<td>4</td>
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<tr>
<td>Chem 101 or 105 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 101 [P] or 105 [P]</td>
<td>4</td>
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<tr>
<td>Econ 101 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
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</table>

**Footnotes**

\(^1\) Restricted math electives include Math 140, 171, 202, Stat 401, 412, 422, Ag Ec 409.

### Natural Resource Major (120 Hours)

Two options are designed to provide specialization in specific areas of natural resource sciences and include natural resource policy and wetland/aquatic resources. Lists of approved electives for each of these options are available from the department. A third option, directed studies, allows students working with their advisors to select courses that either increase their general knowledge of natural resources, or focus upon an aspect of natural resource sciences not represented by the other two options.

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biol 120 or 106 [B] (GER)</td>
<td>4</td>
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<tr>
<td>Eng 101 [W] (GER)</td>
<td>3</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Math 107</td>
<td>4</td>
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<tr>
<td>NATRS 100</td>
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<tr>
<th>Second Year</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biol 106 [B] (GER)</td>
<td>4</td>
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<tr>
<td>Biol 107 [B] or 120 [B] (GER)</td>
<td>4</td>
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<tr>
<td>Chem 101 or 105 [P] (GER)</td>
<td>4</td>
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<tr>
<td>Chem 101 [P] or 105 [P]</td>
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</tr>
<tr>
<td>Econ 101 [S] (GER)</td>
<td>3</td>
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<td>GenEd 111 [A] (GER)</td>
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### Wildlife Ecology - Directed Studies Option (120 Hours)

This directed studies option allows students to select approved electives in the areas of habitat ecology, aquatic ecology, animal ecology and conservation biology.

<table>
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<tr>
<th>First Year</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biol 106 [B] (GER)</td>
<td>4</td>
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<tr>
<td>Biol 107 [B] (GER)</td>
<td>4</td>
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<tr>
<td>Chem 101 [P] (GER)</td>
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<td>GenEd 111 [A] (GER)</td>
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<tr>
<th>Second Year</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biol 106 [B] (GER)</td>
<td>4</td>
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<tr>
<td>Biol 107 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 101 [P] or 105 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Econ 101 [S] (GER)</td>
<td>3</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
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</tbody>
</table>
### Second Year

**First Term**
- Engl 201 [W], H D 205 [C], or ComSt 102 [C] (GER) 3
- NATRS 204 2
- NATRS 280 3
- NATRS 300 3
- NATRS 301 3

**Second Term**
- Animal Systematics or Option Courses1 3
- Chem 102 [P] or 106 [P] (GER) 4
- NATRS 302 3
- NATRS 312 2
- Restricted Math Elective2 4
- Complete Writing Portfolio

### Third Year

**First Term**
- Animal Systematics or Option Courses1 6
- Arts & Humanities [H,G] (GER) 3
- Stat 412 3
- Elective 1

**Second Term**
- Animal Systematics or Option Courses1 4
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Intercultural Studies [I,G,K] (GER) 3
- NATRS 330 3
- NATRS 431 3

### Fourth Year

**First Term**
- Animal Systematics or Option Courses1 6
- NATRS 435 4
- NATRS 450 [M] 3
- Tier III Course [T] (GER) 3

**Second Term**
- Animal Systematics or Option courses1 3
- NATRS 436 [M] 4
- NATRS 438 [M] 3
- NATRS 441 4
- NATRS 470 2

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**Footnotes**
1. Students in consultation with their advisors select 11-14 hours of course work for the option requirement. To facilitate selection the department/advisors have developed course lists for the most widely chosen areas of emphasis which may include minors.
2. Restricted Math electives include: Math 140, 171, 202, and Stat 212. Math 140 is the preferred elective.

### WILDLIFE ECOLoGY - PRE-VETERINARY OPTION

#### First Year

**First Term**
- Biol 106 [B] (GER) 4
- Chem 105 [P] or 115 [P] (GER) 4
- Engl 101 [W] (GER) 3
- Math 107 4
- NATRS 100 1

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**Second Term**
- Arts & Humanities [H,G] (GER) 3
- Biol 107 [B] (GER) 4
- Chem 106 [P] or 116 [P] (GER) 4
- Engl 201 [W], HD 205 [C], or ComSt 102 [C] (GER) 3
- GenEd 110 [A] (GER) 3

**Second Year**

**First Term**
- Chem 345 4
- EconS 101 [S] (GER) 3
- GenEd 111 [A] (GER) 3
- NATRS 280 4
- Restricted Math Elective1 4

**Second Term**
- Intercultural Studies [I,G,K] (GER) 3
- MBioS 303 4
- NATRS 312 2
- NATRS 330 3
- Stat 412 3
- Complete Writing Portfolio

**Third Year**

**First Term**
- MBioS 301 4
- NATRS 204 2
- NATRS 300 or Biol 372 3 or 4
- NATRS 301 3
- NATRS 435 4

**Second Term**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- NATRS 302 [M] 3
- NATRS 436 [M] 4
- Phys 101 [P] or 201 [P] (GER) 4
- Tier III Course [T] (GER) 3

**Fourth Year**

**First Term**
- Animal Systematics Elective2 3-4
- NATRS 450 [M] 3
- Electives 6

**Second Term**
- Animal Systematics Elective2 4
- NATRS 431 3
- NATRS 438 3
- NATRS 441 4
- NATRS 470 2

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**Footnotes**
1. Restricted Math electives include: Math 140, 171, 202, and Stat 212. Math 140 is the preferred elective.
2. Each student is required to choose two animal systematics courses from list shown below.

### Description of Courses

#### Minors

**Forestry**

Minimum of 16 credit hours. Required courses: NATRS 204, 301, 305. Restricted electives: at least 8 credit hours selected from NATRS 331, 348, 420, 430, 460. Credit hours must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

**Natural Resources**

Minimum of 16 credit hours of courses approved by department. For non-natural resource sciences majors only. Required courses: at least 9 credit hours of NATRS courses, at least 9 credit hours of courses numbered 300 or higher, and at least one course in each of the following areas (three courses total); individual courses may be used to satisfy only one area: 1) basic principles of natural resource sciences/management: recommended electives: NATRS 100 and 303; others upon departmental approval; 2) socioeconomic aspects of natural resource sciences/management: recommended electives: NATRS 303, 311, 312, 403, 419, 438; others upon departmental approval; 3) ecological aspects of natural resource sciences/management: recommended electives: NATRS 280, 301, 302, 303, 419, 450, 460, 470; others upon departmental approval. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

**Rangeland Ecology and Management**

Minimum of 20-23 credit hours. Required courses: NATRS 455, 460, 468 and SoilS 201. One from NATRS 459 or Biol 462. One from NATRS 428, 430 or ES/RP 444. One from A S 101 or 174. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

**Wildlife**

Minimum of 19 credit hours. Required courses: NATRS 280, 435. Restricted electives: at least 11 credit hours from NATRS 431, 436, 450, 460 no more than one from Biol 423, 428, 432. Credit hours for the minor must include 9 hours taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.
204 Introduction to Measurements and Computers in Natural Resources 3 (1-3) Prereq Math 107, 140, 171, 202 or equivalent, or instructor's permission. Introduction to basic concepts, field techniques and the use of spread sheets in natural resources. Field trips required.

280 Introductory Wildlife Management 4 (3-3) Prereq Biol 106 or 120. An introductory course in the principles of wildlife management. Field trip required.


301 Forest Plants and Ecosystems 3 (2-3) Prereq NATRS 300 or c/c. Identification and ecology of forest plants with emphasis on trees and the ecosystems in which they occur. Field trips required.

302 Arid Land Plants and Ecosystems 3 (2-3) Prereq NATRS 301. Identification and ecology of arid land plants (trees, shrubs, grasses, forbs) and the ecosystems in which they occur. Field trips required.

305 Silviculture 3 Prereq NATRS 204, 300, 302. Stand dynamics, natural regeneration methods, intermediate stand treatment, relationships of natural resource management to silvicultural practice. Field trips required.

312 [S,D] Natural Resource and Society 3 Social views of natural resources; processes by which these views are developed and expressed; social conflict over natural resources.

314 Forest Measurements and Yield Prediction 4 (3-3) Prereq NATRS 204, Stat 212 or Stat 412. Introduction to techniques for measuring and quantifying tree characteristics, describing site productivity, stand structure and depcting tree and stand development.

320 Timber Harvesting 3 Prereq NATRS 204. Current practices and problems; planning and coordinating timber harvesting with forest management. Field trips required. Cooperative course taught by UI (ForP 430), open to WSU students.

321 Introduction to Wood Technology 3 Prereq Biol 107. Anatomy of woody plants, identifying characteristics and properties of woods; relation of wood properties to processing and use. Field trips required. Cooperative course taught by UI (ForP 277), open to WSU students.

330 Natural Resource Economics 3 Rec EconS 101. Same as EconS 330.

331 Forest Pathology 2 (0-6) Prereq Biol 107. Same as PLP 331.

348 Forest Insects 1 Classification and biology of insects injurious to forests and forest products.

349 Forest Pest Management 1 Prereq NATRS/ Entom 348 or 343. Principles and practice of forest pest management.

368 Introduction to ArcGIS 3 (1-6) Prereq one course in biology, geology, or soils. Same as SoilS 368.

374 Remote Sensing and Airphoto Interpretation 3 (2-3) Same as SoilS 374.

410 Forest Finance and Valuation 3 Prereq Ag Ec 201 or Econ 101; Math 107; NATRS 204. Economic and finance principles applied to forest management and appraisals.

411 [M] Limnology and Aquatic Ecosystem Management 3 (2-3) Prereq Biol 102 or 120; Chem 101. Introduction to the science and management of aquatic ecosystems, emphasizing lakes.


416 Fisheries Management 4 (3-3) Prereq UI Fish 314, 411; Stat 251. Techniques employed in sampling and application of principles toward managing recreational and commercial aquatic resources. Cooperative course taught jointly by WSU and UI (Fish 418).

417 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.

419 Topics in Natural Resource Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Topical issues in natural resource sciences.

421 Fish Health Management 4 (3-3) Prereq MBioS 101. Epidemiology, prevention, diagnostics, and treatment of infectious and non-infectious diseases of free-living and confined finfish and shellfish. Cooperative course taught by UI (Fish 424), open to WSU students.

423 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq junior standing or by interview only. Topical issues in natural resource sciences.

424 Concepts in Aquaculture 3 (2-3) Prereq NATRS 421, or permission of instructor. Concepts and methods of extensive and intensive aquaculture in warm and cold water systems. One 1-day field trip. Cooperative course taught by UI (Fish 422), open to WSU students.

425 Concepts in Aquaculture Laboratory 1 (0-3) Prereq NATRS 421, or permission of instructor. Laboratory for NATRS 424. Concepts and methods of extensive and intensive aquaculture in warm and cold water systems. One-day field trip required. Cooperative course taught by UI (Fish 422), open to WSU students.

428 Resolving Environmental Conflicts 4 (3-3) Prereq junior standing, two social science courses. Same as CRS 435. Credit not granted for both NATRS 428 and 528.

430 Introduction to Wildland Fire 3 Prereq NATRS 301. Physical nature and behavior of wildland fire; the fire environment; fire ecology; practice of wildland fire management. Field trip required.

431 Wildlife Nutrition 3 (2-3) Nutritional requirements and interactions of wildlife populations. Cooperative course taught by WSU, open to UI students (WLF 431).

435 Wildlife Ecology 4 (3-3) Prereq Biol 372 or NATRS 300; Stat 212 or 412. The ecology of wildlife species and the contributing biological processes. Overnight field trip required. Credit not granted for both NATRS 435 and 535.


438 Natural Resource and Environmental Policy and Law 3 Prereq junior standing or permission of instructor. Development, content and implementation of natural resources and environmental policy and law in the U.S. Emphasis on both historical development and current issues in this field. Credit not granted for both NATRS 438 and 538.

441 Population Ecology and Conservation 4 (3-3) Prereq Biol 372 or NATRS 300; Stat 212 or 412. Ecology, conservation, management of vertebrate populations, especially threatened and endangered species; designed for wildlife and conservation biology majors.


450 [M] Conservation Biology 3 Prereq by interview only. Patterns of biological diversity, factors producing changes in diversity, values of diversity, management principles applied to small populations, protected areas, landscape linkages, biotic integrity, restoration, legal issues and funding sources. Credit not granted for both NATRS 450 and 550.

454 [M] Restoration Ecology 3 (2-3) Prereq senior standing. Ecological principles used to restore biological communities; ecological processes and species on degraded landscapes. Credit not granted for both NATRS 454 and 554.

455 Elements of Range Management Sciences 3 Prereq Biol 107. Systems science, ecology, wildlife, livestock, social science, concept design, and their contributions to a management science involving rangelands.

460 Watershed Management 3 Prereq NATRS 204, completion of department requirement in biology, chemistry, and physical science, mathematics and statistics; or by interview. Principles and practices of management of forest and rangelands for protection, maintenance, and improvement of water resource values. Field trip required. Credit not granted for both NATRS 460 and 560.

464 [M] Landscape Ecology 3 (2-3) Prereq junior standing. Linkages between spatial patterns and processes in a variety of landscapes and the qualitative tools used in the investigation of these linkages. Credit not granted for both NATRS 464 and 564.

468 ArcGIS and Geospatial Analysis 4 (2-6) Prereq Biol 120, Geol 101 or Soils 201. Same as SoilS 468.
Naval Science

www.navy.uidaho.edu
Navy Building. University of Idaho
208-885-6333

Professor of Naval Science, Captain Ryder, Commander Rissky, Major Culp, Lieutenant Stofferahn, Lieutenant Patterson, Lieutenant Roberts.

The Navy-Marine Corps Officer Education Program, administered and taught by the NROTC staff at the University of Idaho, is open to men and women and offers scholarships leading to reserve commissions in the Navy and Marine Corps and active duty as Navy or Marine Corps officers. Normally, students enter the program at the beginning of their freshman year; however, selected students may enter up to the beginning of their junior year. Students take 20 hours of professional courses taught by the Navy and Marine Corps staff of the NROTC unit. In addition to the professional courses, students enrolled in the NROTC Program must also participate in Naval Science Drill (NS 100) each semester. Following graduation, the newly commissioned officer is offered a broad variety of duty assignments including duty on nuclear submarines and surface ships, in naval aviation, and ground or aviation assignments in the Marine Corps. All commissionees go on active duty at full pay and allowances immediately upon graduation.

College Program

Application for this program is made directly to the head of the Department of Naval Science. Students receive their uniforms and naval science textbooks at no cost and begin receiving a monthly stipend of $350 per month at the beginning of their junior year. College Program students may

479 Natural Resource Management Internship V 2-12 May be repeated for credit, cumulative maximum 12 credit hours. An elective opportunity for select students to supplement their academic training with practical field experience.

488 [M] Senior Thesis in Natural Resources V 3-6 Prereq senior in natural resource sciences. May be repeated for credit; cumulative maximum 6 hours.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

515 Aquatic Restoration Ecology 3 Review of the response of impacted lake, stream, and wetland systems to rehabilitation and restoration; theory and working examples of each will be addressed. Cooperative course taught by UI (Fish 519), open to WSU students.

519 Advanced Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.

521 Human Dimensions of Wildlife Management 2 Prereq NATRS 435. An exploration of the elements involved in the management of wildlife for non-consumptive activities, the impacts of such activities on wildlife, the role of national parks and protected areas in providing wildlife viewing opportunities, and public attitudes toward wildlife species. Cooperative course taught by UI (WLF 520), open to WSU students.

524 Plant Ecophyiology 3 Prereq course in general ecology or botany. Adaptations of individual plant species to their environment, emphasizing ecophysiological mechanisms that influence plant establishment, below and above ground productivity. Field trips required. Cooperative course taught by UI (Fish 519), open to WSU students.

525 Experimental Plant Ecology 1 (0-3) Experimental techniques in plant ecology with orientation toward environmental and physiological measurement in field and laboratory research. Cooperative course taught by WSU, open to UI students (Rnge 525).

526 Population Analysis 1 Prereq NATRS/Entom/Biol 529, biometry, Analysis, diagnosis, interpretation, and forecasting of population change.

528 Resolving Environmental Conflicts 4 (3-3) Prereq graduate standing, two social science courses. Same as CRS 535. Graduate-level counterpart of NATRS 428; additional requirements. Credit not granted for both NATRS 428 and 528.

529 Principles of Population Dynamics 1 Prereq general ecology. Development of the theory of population dynamics from Mathus to the present.

535 Wildlife Ecology 4 (3-3) Prereq Biol 372 or NATRS 300; Stat 212 or 412. Graduate-level counterpart of NATRS 435; additional requirements. Credit not granted for both NATRS 435 and 535.

536 Advanced Wildlife Management 4 (3-3) Prereq NATRS 435. Graduate-level counterpart of NATRS 463; additional requirements. Credit not granted for both NATRS 436 and 536.

538 Natural Resource Policy and Administration 3 (2-2) Graduate-level counterpart of NATRS 438; additional requirements. Credit not granted for both NATRS 438 and 538.

541 Population Ecology and Conservation 4 (3-3) Prereq Biol 372 or NATRS 300; Stat 212 or 412. Graduate-level counterpart of NATRS 441; additional requirements. Credit not granted for both NATRS 441 and 541.

545 Advanced Ecosystem and Landscape Management 2 Prereq enrollment in NRI or by interview only. Ecosystems and landscape management principles, assessments, monitoring, design, and practice, incorporating biological and socioeconomic perspectives.

550 Conservation Biology 3 Prereq by interview only. Graduate-level counterpart of NATRS 450; additional requirements. Credit not granted for both NATRS 450 and 550.

551 Rangeland Vegetation Ecology 3 Prereq two ecology courses. Ecological concepts of dynamics and distribution of plant communities; secondary succession processes, soil-vegetation relationships and development of vegetation classification schemes. Cooperative course taught by UI (Rnge 551), open to WSU students.

554 Restoration Ecology 3 (2-3) Restoration Ecology 3 (2-3) Graduate-level counterpart of NATRS 454; additional requirements. Credit not granted for both NATRS 454 and 554. Cooperative course taught by UI, open to WSU students (Rnge 552).

556 Foraging Ecology of Herbivores 2 Prereq graduate student or by permission. Synthesis of foraging behavior concepts including nutritive quality of forages, digestive and metabolic constraints, and diet and habitat selection. Cooperative course taught jointly by WSU and UI (Rnge 556).

560 Watershed Management 3 Prereq NATRS 204; completion of department requirement in biology, chemistry, and physical science; mathematics and statistics; or by interview. Graduate-level counterpart of NATRS 460; additional requirements. Credit not granted for both NATRS 460 and 560.

564 Landscape Ecology 3 (2-2) Graduate-level counterpart of NATRS 464; additional requirements. Credit not granted for both NATRS 464 and 564.

575 Sensing and Geospatial Analysis 3 (1-4) Prereq SoilS 374; 476 or equivalent. Same as SoilS 574.

588 Advanced Topics in Wildlife V 1-3 May be repeated for credit; cumulative maximum 10 hours. Biology and management of wildlife species. Cooperative course taught jointly by WSU and UI (WLF/For/FWR/Rnge/RRTT 505).

593 Special Topics Seminar 1 May be repeated for credit. Prereq 20 hours NATRS. Literature and problems.

594 Environmental and Natural Resources Issues and Ethics 3 May be repeated for credit; cumulative maximum 7 hours. Prereq senior standing. Ethical systems applied to natural resources; issues of professionalism and ethics in natural resource management. Cooperative course taught by WSU, open to UI students (RRT 594).

595 Seminar in Natural Resource Sciences 1 May be repeated for credit. Literature review; preparation and presentation of reports in natural resource sciences.

600 Special Projects or Independent Study Variable credit Prereq department chair approval. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master’s Special Problems, Directed Study and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

Program in Naval Science
be nominated by the Professor of Naval Science for a two- or three-year scholarship as freshmen, sophomores, or first-semester juniors, if their grades and military aptitude marks are sufficient to warrant such nomination. The program requires one training cruise during the summer following the junior year. It is an all-fleet cruise of the same type and with the same pay as described for the Scholarship Program. Graduates of this program are commissioned as reserve officers and are ordered to active duty upon graduation.

Scholarship Program

The scholarship benefits include tuition, fees, a book allowance, and a monthly stipend of up to $400.

Application for this program is normally made during the early fall of the student's senior year of high school. Initial selections are based on college entrance examination scores (SAT or ACT) and high school academic performance.

A student on scholarship participates in three summer training cruises of four to six weeks duration. During the first cruise, students are introduced to the submarine, amphibious warfare (Marine Week), surface warfare, and aviation communities. The second and third cruises are aboard ships of the Pacific or Atlantic fleets and often include travel to Europe or the Far East.

During summer cruises, the students receive one-half the pay of an ensign, in addition to room and board.

Graduates of this program are commissioned as reserve officers in the Navy or Marine Corps.

Marine Corps Option

Both male and female Scholarship and College Program students who desire a Marine Corps commission may apply for the Marine Corps option during their first two years in college. Students taking this option enroll in specialized classes on Marine Corps subjects during their junior year and participate in summer training at the Marine Corps Development and Education Center, Quantico, Virginia during the summer following their junior year.

Naval Science Institute

Navy-Marine Corps Scholarship and College Program applicants entering the program after completion of their sophomore year will be required to attend the Naval Science Institute (NSI) during the summer between their sophomore and junior years. At the NSI, they will study the material taken by the four-year candidates during their freshman and sophomore years. On completion of the NSI, candidates return to the university and complete their junior and senior years of the naval science curriculum with their peers. Candidates in the two-year program will participate in one all-fleet cruise during their junior and senior years. Applications must be submitted early in the second semester of the sophomore year. The top NSI graduates are awarded scholarships for their last two years of college. The remaining graduates enter the College Program and receive those benefits.

Nursing Program

The NROTC program also offers scholarships leading to commissioning in the Navy Nurse Corps. Selected students attend one year of classes at WSU and then transfer to Intercollegiate Center for Nursing Education (ICN) in Spokane, Washington, for completion of the BS in Nursing. Application for this program can be made during the freshman year. For more information concerning this program, please see the Intercollegiate Program in Nursing.

Field Trips

Field trips to Navy and Marine Corps facilities are arranged periodically in order to allow the Navy-Marine Corps Officer Education Program members the opportunity to learn more about the naval service.

Minors

Naval Science

N S 101, 102, 201, 202; four to six courses from the following: N S 301, 302, 311, 401, 402, 412. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

Description of Courses

Naval Science Courses

N S

100 Drill Lab 1 (0-2) No credit. Required of all Navy-Marine Corps Officer Education Program students. Two hour lab per week. Cooperative course taught by UI (NS 100), open to WSU students. S, F grading.

101 Introduction to Naval Science 2 Roles of major elements of naval service; design and structure of ships. Cooperative course taught by UI (NS 101), open to WSU students.

102 Ships Systems I 3 Introduction to damage control and propulsion systems of naval ships; nuclear and conventional power. Cooperative course taught by UI (NS 102), open to WSU students.

201 Ships Systems II 3 Naval weapons: ballistics, control, propulsion, components, systems analysis. Cooperative course taught by UI (NS 201), open to WSU students.

202 Seapower and Maritime Affairs 3 US Navy and merchant marine seapower, development, and policy. Cooperative course taught by UI (NS 202), open to WSU students.

299 Directed Study 1-4 May be repeated for credit; cumulative maximum 12 hours. By interview only. Cooperative course taught by UI (NS 299), open to WSU students.

301 Navigation 3 Theory, principles, and procedures of terrestrial and celestial navigation. Cooperative course taught by UI (NS 301), open to WSU students.

302 Naval Operations 3 Prereq N S 301. Naval operations and tactics, relative motion, rules of the nautical road. Cooperative course taught by UI (NS 302), open to WSU students.

311 Evolution of Warfare 3 Rec N S 101, 202. Evolution of war through tactics; strategy from Sun Tzu to J.F.C. Fuller. Cooperative course taught by UI (NS 311), open to WSU students.

401 Naval Organization and Management 3 Theories of management and management resources, motivational theories and leadership. Cooperative course taught by UI (NS 401), open to WSU students.

402 Naval Leadership 2 Rec N S 401. Principles and styles of leadership, personal attributes, and UCMJ. Cooperative course taught by UI (NS 402), open to WSU students.

412 Amphibious Operations 3 Rec N S 311. Amphibious doctrine from Gallipoli to Mayaguez. Cooperative course taught by UI (NS 412), open to WSU students.

420 Basic Leadership 1 By interview only. Practical application of leadership and management techniques through the branch and division officer level. Cooperative course taught by UI (NS 499), open to WSU students.

421 Intermediate Leadership 2 By interview only. Practical application of leadership and management techniques through the department head level. Cooperative course taught by UI (NS 499), open to WSU students.

499 Directed Study V 1-4 May be repeated for credit. By interview only. Cooperative course taught by UI (NS 499), open to WSU students. S, F grading.

Program in Neuroscience


McCoy 110

509-335-7675

Neuroscience, the study of the brain and central nervous system, is a multidisciplinary program leading to the Bachelor of Science, Master of Science, and Doctor of Philosophy degrees, as well as to a minor at the undergraduate level. The neuroscience field plays an important role in both human and animal biomedical science. Innovations by Washington State University neuroscientists advance the world’s understanding of how nerves and brain chemicals produce our feelings and behaviors and how poor health results from disturbances in the delicate organization of the brain. Neuroscience seeks to answer questions that touch on nearly every aspect of human life, including feeling, eating, sleeping, remembering, sensing, and maintaining health.

The undergraduate program for majors is designed for students interested in preparing for professional study in the health sciences (such as medical doctor or doctor of veterinary medicine), graduate school, or for those who wish to use their training in laboratory settings in universities, government organizations, or industry.

Computational neuroscience is an option within the neuroscience major and links the information processing features of the nervous system with information processing of computer systems. Accordingly, the computational neuroscience track supplements the neuroscience core curriculum with information technology courses. In this way students learn not only of the brain and its information processing mechanisms, but also of modern computer hardware and software technologies.

Upon completion of the four-year curriculum, a BS in Neuroscience will be awarded. Furthermore, the program is designed to allow students to acquire breadth in computation subjects or, alternatively, to focus on either software or hardware aspects of computation. Students choosing to acquire breadth in computational subjects will be well prepared for graduate study in most areas of neural and biomedical science, including bioengineering. Students choosing a software or hardware focus may obtain a minor in either computer science or computer engineering.

The graduate program prepares students for careers in academia, research, and public service. Upon graduation, neuroscience students are credible experts in the areas of their thesis research. The neuroscience graduate faculty experts are nationally and internationally recognized for their contributions to science and society. Doctoral students interested in neuroscience research can pursue their studies with faculty who are unraveling the complexities of:

- Addiction
- Sleep and Performance
- Body Weight and Energy Balance
- Emotion and Well-Being
- Learning and Memory
- Reproduction
- Vision
- Movement

When you graduate with a doctoral or masters degree in Neuroscience, a world of opportunity awaits you. You will have, in hand, peer reviewed publications, a NIH-style grant proposal ready for submission, and the skills to continue on as an independent researcher or as part of a collaborative team. Neuroscience graduates have gone on to excellent jobs in biotechnology and medical device industries, to professional schools (medical, veterinary, and law, for example), or to other tier one research universities to teach and continue their research and studies.

Specific student learning outcomes for neuroscience majors include:

1. Breadth and Depth of Discipline – Demonstrate knowledge in one (1) or more core Neuroscience areas.
2. Communication – Communicate effectively (both orally and in writing).
3. Information Literacy – Effectively (thoroughly) search, evaluate, and cite the appropriate neuroscience literature.
4. Quantitative and Symbolic Reasoning – Apply appropriate quantitative tools to data.
5. Thinking Critically and Creatively – Implement the “scientific method”.
6. Self in Society – Be aware of the implications and significance of Neuroscience (results, etc.) to society.

Transfer Students
Transfer students must satisfy the program requirements for graduation. Science courses taken at other institutions will be evaluated and credits accepted where possible. Inquiries should be directed to a Neuroscience undergraduate advisor.

7-Year Honors Neuroscience/Veterinary Medicine Degree Program
Academically qualified undergraduate students who meet the highly selective criteria for admission to WSU’s Veterinary Medical Program may apply to the 7-year BS/DVM degree program in neuroscience after completion of one year of Honors College coursework at WSU. If accepted into the program, the student will work toward a bachelor of science in neuroscience in the first three years of the program and toward the doctor of veterinary medicine degree in the following four years. The first three years are a combination of Honors College courses and regular university courses that fulfill the pre-veterinary and major specific requirements. The last four years are the traditional doctor of veterinary medicine program, plus completion of an honors thesis. Prospective applicants must be admitted to the WSU Honors College and enrolled in Honors courses. See the Honors College for additional information.

Preparation for Graduate Study in Neuroscience
To be eligible for admission, candidates must meet general Washington State University requirements outlined in the Graduate Study Bulletin in effect at the time of their admission, as well as the current graduate neuroscience program requirements. Applicants for admission to the Graduate Program in Neuroscience must have a minimum GPA of 3.0 (A=4.0) either on the basis of the last 60 graded semester or 90 graded quarter hours of undergraduate study or basic science portion of a graduate or professional curriculum (first 60 credit hours). Applicants will have to have completed courses in analytical chemistry, organic chemistry, calculus, physics and a minimum of three courses in different areas of the biological sciences. It is advisable that applicants have a basic statistics course prior to entering the neuroscience program.

Applications for admission to the program must include a completed graduate school application form, GRE test scores, official transcripts for all college-level course work, three letters of recommendation from references capable of judging aptitude and capability for graduate study by the applicant, and a statement by the applicant that describes career goals and research interests. For students whose native language is not English, TOEFL scores are also required. Inquiries should be directed to the Program in Neuroscience, Department of VCAPP, Washington State University, Pullman, WA 99164-6520 or email grad.neuro@wsu.edu. Students normally begin their studies in the fall semester, which starts the latter part of August. The deadline for completed applications for admission to the Neuroscience Program is December 31. Applicants are offered admission on a rolling basis, but may be notified of acceptance as late as March 1. Students may still apply for admission after December, but there is no guarantee that a graduate stipend will be available for late applicants.

Schedules of Studies
Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

<table>
<thead>
<tr>
<th>Neuroscience - Computational (BREADTH OF FIELD EMPHASIS)</th>
<th>(126 HOURS)</th>
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<tbody>
<tr>
<td>First Year</td>
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<tr>
<td>First Term</td>
<td>Hours</td>
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<tr>
<td>Chem 105 [P] (GER)1</td>
<td>4</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Math 171 [N] (GER)1</td>
<td>4</td>
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<tr>
<td>Psych 105 [S] (GER)</td>
<td>3</td>
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<tr>
<td>Second Term</td>
<td>Hours</td>
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<tr>
<td>Biol 106 [B] (GER)1</td>
<td>4</td>
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<tr>
<td>Chem 106 [P] (GER)1</td>
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<tr>
<td>Cpt S 121</td>
<td>4</td>
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<tr>
<td>Math 172</td>
<td>4</td>
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<tr>
<td>Second Year</td>
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<tr>
<td>First Term</td>
<td>Hours</td>
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<tr>
<td>Chem 245</td>
<td>4</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Math 220</td>
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<tr>
<td>Math 273</td>
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<tr>
<td>Neuro 301</td>
<td>3</td>
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<tr>
<td>Phil 201 [H] (GER)1</td>
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<tr>
<td>Second Term</td>
<td>Hours</td>
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<tr>
<td>Biol 107 [B] (GER)1</td>
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<tr>
<td>Cpt S 122</td>
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<tr>
<td>Engl 402 [C,W] (GER)</td>
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<tr>
<td>MBios 303</td>
<td>4</td>
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<tr>
<td>Complete Writing Portfolio</td>
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</tbody>
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275
### Third Year
**First Term**
- E E 214 3
- Phys 201 [P] (GER) 4
- Math 216 3
- Math 315 3
- Neuro 403 [M] 3

**Hours**

**Second Term**
- Intercultural Studies [I,G,K] (GER) 3
- MBioS 301 4
- Neuro 404 3
- Phys 202 4

**Fourth Year**
**First Term**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- E E 261/262 3 or 1
- Neuro 403 3
- Program Electives (consult advisor) 6

**Hours**

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### Footnotes
1 Satisfied course requirements for entrance into medical or veterinary school
2 Prereq Chem 345, Neuro 301 and MBioS 303

### Neuroscience - Computational (Hardware Emphasis) (128 Hours)
Students may certify in computational neuroscience after completing Neuro 301, and a minimum of 24 semester hours with a 3.0 minimum GPA in Biol 106, Biol 107, Chem 105, Chem 106, Math 171, and Math 172, and Phys 201.

### First Year
**First Term**
- Psych 105 [S] (GER) 3
- Chem 105 [P] (GER) 3
- Engl 101 [W] (GER) 3
- Math 171 [N] (GER) 3
- GenEd 110 [A] (GER) 3

**Hours**

**Second Term**
- Biol 106 [B] (GER) 4
- Chem 106 [P] (GER) 4
- Cpt S 121 4
- Math 172 4

**Third Year
**First Term**
- E E 214 3
- Phys 201 [P] (GER) 4
- Math 216 3
- Math 315 3
- Neuro 403 [M] 3

**Hours**

**Second Term**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Intercultural Studies [I,G,K] (GER) 3
- Phys 202 4
- MBioS 301 4
- Neuro 404 3

### Fourth Year
**First Term**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- E E 234 3
- E E 261 3
- E E 262 1
- Neuro 495 or 499 2
- Program Electives (consult advisor) 2

**Hours**

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### Footnotes
1 Satisfied course requirements for entrance into medical or veterinary school
2 Prereq Chem 345, Neuro 301 and MBioS 303

### Neuroscience - Computational (Software Emphasis) (126 Hours)
Students may certify in computational neuroscience after completing Neuro 301, and a minimum of 24 semester hours with a 3.0 minimum GPA in Biol 106, Biol 107, Chem 105, Chem 106, Math 171, Math 172, and Phys 201.

### First Year
**First Term**
- Psych 105 [S] (GER) 3
- Chem 105 [P] (GER) 3
- Engl 101 [W] (GER) 3
- Math 171 [N] (GER) 3
- GenEd 110 [A] (GER) 3

**Hours**

**Second Term**
- Biol 106 [B] (GER) 4
- Chem 106 [P] (GER) 4
- Cpt S 121 4
- Math 172 4

**Third Year
**First Term**
- GenEd 111 [A] (GER) 3
- Biol 107 [P] (GER) 3
- Chem 345 3
- Neuro 301 3
- Phil 201 [H] (GER) 3

**Hours**

**Second Term**
- GenEd 111 [A] (GER) 3
- Biol 107 [P] (GER) 3
- Chem 345 3
- Neuro 301 3
- Phil 201 [H] (GER) 3

### Fourth Year
**First Term**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Cpt S 122 4
- MBioS 303 4
- Complete Writing Portfolio

**Hours**

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### Footnotes
1 Satisfied course requirements for entrance into medical or veterinary school
2 Prereq Chem 345, Neuro 301 and MBioS 303

### Neuroscience - General Option (120 Hours)
Students may certify in general neuroscience (including premed and prevet) after completing Neuro 301 and a minimum of 24 semester hours with a 3.0 minimum GPA in Biol 106, 107, Chem 105, 106, Math 140 or 171, Phys 101, 102.

### First Year
**First Term**
- Biol 106 [B] (GER) 4
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

**Hours**

**Second Term**
- Biol 107 [B] (GER) 4
- Chem 106 [P] (GER) 4
- Cpt S 121 4
- Math 172 4

**Third Year
**First Term**
- GenEd 111 [A] (GER) 3
- Biol 107 [P] (GER) 3
- Chem 345 3
- Neuro 301 3
- Phil 201 [H] (GER) 3

**Hours**

**Second Term**
- GenEd 111 [A] (GER) 3
- Biol 107 [P] (GER) 3
- Chem 345 3
- Neuro 301 3
- Phil 201 [H] (GER) 3

### Second Year
**First Term**
- Arts & Humanities [H,G] (GER) 3
- Communication Proficiency [C,W] (GER) 3
- Intercultural Studies [I,G,K] (GER) 3

**Hours**

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### Footnotes
1 Satisfied course requirements for entrance into medical or veterinary school
2 Part of the 345-346 year-long sequence. Recommended for medical, dental, or optometry school.
3 Prereq Chem 345, Neuro 301 and MBioS 303
**Neuroscience**

**Recommended for medical, dental, or optometry school.**

Recommended courses approved by advisor.

2 Math 105, 171, 202, or 206 can substitute.

1 Part of the 345-346 year-long sequence.

### Tier III Course [T] (GER) 3

**Footnotes**

1 Part of the 345-346 year-long sequence. Recommended for medical, dental, or optometry school.

### NEUROSCIENCE - PRE-MEDICAL AND PRE-DENTAL OPTION (120 HOURS)

Students may certify in general neuroscience (including premed and prevet) after completing Neuro 301 and a minimum of 24 semester hours with a 3.0 minimum GPA in Biol 106, 107, Chem 105, 106, Math 140 or 171, Phys 101, 102.

#### First Year

**First Term**

- Biol 106 [B] (GER) 4
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

**Second Term**

- Biol 107 [B] (GER) 4
- Chem 106 [P] (GER) 4
- GenEd 111 [A] (GER) 3
- Phys 105 [S] (GER) 3

#### Second Year

**First Term**

- Arts & Humanities [H,G] (GER) 3
- Communication Proficiency [C,W] (GER) 3
- Intercultural Studies [I,G,K] (GER) 3
- Neuro 301 3
- Phys 101 [P] (GER) 4

**Second Term**

- Arts & Humanities [H,G] (GER) 3
- Communication Proficiency [C,W] (GER) 3
- Intercultural Studies [I,G,K] (GER) 3
- Neuro 301 3
- Phys 101 [P] (GER) 4

#### Third Year

**First Term**

- Biol 315 4
- Biol 438, Psych 384, or 390 4
- MBioS 301 4

**Second Term**

- Chem 345 4
- Neuro 404 3
- Neuro or other Electives 9

**Footnotes**

1 Part of the 345-346 year-long sequence. Recommended for medical, dental, or optometry school.

### NEUROSCIENCE - PRE-VETERINARY OPTION (120 HOURS)

Students may certify in general neuroscience (including premed and prevet) after completing Neuro 301 and a minimum of 24 semester hours with a 3.0 minimum GPA in Biol 106, 107, Chem 105, 106, Math 140 or 171, Phys 101, 102.

#### First Year

**First Term**

- Biol 106 [B] (GER) 4
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

**Second Term**

- Biol 107 [B] (GER) 4
- Chem 106 [P] (GER) 4
- GenEd 111 [A] (GER) 3
- Psych 105 [S] (GER) 3

#### Second Year

**First Term**

- Arts & Humanities [H,G] (GER) 3
- Communication Proficiency [C,W] (GER) 3
- Intercultural Studies [I,G,K] (GER) 3
- Neuro 301 3
- Phys 101 [P] (GER) 4

#### Third Year

**First Term**

- MBioS 301 4
- MBioS 303 4

**Second Term**

- Biol 438 [M] (recommended neuro elective) 3
- Neuro 404 3
- Neuro 495/499 or other Electives 6
- V An 308 (recommended neuro elective) 4
- Take GRE

#### Fourth Year

**First Term**

- Neuro 403 [M] 3
- Neuro 495 or 499 2
- Neuro or other Electives 4

**Second Term**

- Neuro 430 3
- Neuro 490 1
- Electives 6

#### Minors

**Neuroscience**

Students may apply for a minor in neuroscience once they have completed 60 semester credit hours and have a 2.0 GPA. However, they may take minor coursework at any time as long as they meet the prerequisites. Minor certification forms are available in the Neuroscience Office, Wegner 205, and the Student Advising and Learning Center, Lighty 260. A minor in neuroscience requires 16 credits in Neuroscience, with at least 13 at or above the 300-level. Courses needed to satisfy the minor must include Neuro 301; three credits selected from Psych 384, Psych 390, or Biol 438; at least three credits of Neuro 495 or Neuro 499; and at least six credits from the following: Neuro 403, Neuro 404, and Neuro 430. Up to five credits of Neuro 495 or 499 may be included. Upon the approval of the student’s advisor, a student with a minor in neuroscience may include 500-level courses in the minor program, provided the student meets the graduate study requirements and, prior to registration, obtains the consent of the faculty member(s) teaching the course. Students must maintain a minimum 2.0 GPA to remain certified as a neuroscience minor. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.
Description of Courses

Neuroscience Courses

Neuro

138 Neuroscience Seminar 1 May be repeated for credit; cumulative maximum 2 hours. For first-year students. Introduces new students to individual faculty research interests and helps students link personal interests to academic majors. S, F grading.

275 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

301 Exploring the Brain 3 Rec Chem 101 or higher and Biol 107 or c/.. Structure and function of the nervous system from single neurons to behavior. Credit not granted for both Neuro 301 and 302.

302 Exploring the Brain - Honors 3 Prereq Chem 106, Biol 107 and Phys 101 with a grade of B or higher. Basic concepts, analysis and discussion of the experimental foundations for understanding nervous system function. Credit not granted for both Neuro 301 and 302.

403 [M] Cellular Neurobiology 3 Prereq Neuro 301; MBioS 303. Cellular and molecular interactions occurring within the nervous system.

404 Neuroanatomy 4 (3-3) Prereq Neuro 301, or by interview only. Fundamental principles of the organization and plans of circuitry of the nervous system.

406 Neuroscience Research Techniques 3 (2-3) Prereq Neuro 301, or by interview only. Historical development, theory and technical bases for contemporary laboratory methods in the neurosciences.

409 Affective Neuroscience 3 Prereq A S 440, Biol 353, Neuro 301, or Psych 372. Brain mechanisms of human and animal emotions. Credit not granted for both Neuro 409 and 509.

430 [M] Principles of Neurophysiology 4 (3-3) Prereq Biol 107; Neuro 301; Phys 102, 202 or 206; or by interview; Rec MBioS 303. Advanced exploration of the principles underlying cellular, sensory, motor and integrative functions of the nervous system.

461 Neurobiology 3 Prereq Phys 101; Chem 345 recommended. Chem 240 Study of the basic mechanisms of neuronal signaling, the function of sensory systems, and neural development. Cooperative course taught by UI (Biol 461), open to WSU students.

480 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

490 Senior Project 1 Prereq senior standing; certified neuroscience major; may be taken c/.. with Neuro 495 or 499. Research project poster or oral presentation. S, F grading.

495 Directed Research V 1-3 May be repeated for credit. Prereq certified Neuro major or minor. Introduction to neuroscience research literature.

499 Special Problems V 1-3 May be repeated for credit. Prereq certified neuroscience major or minor. Introduction to neuroscience laboratory research. S, F grading.

505 Principles and Methods of Toxicology 3 Prereq MBioS 513 or c/.. 300-level organ/mammalian physiology or permission of instructor. Same as P/T 505.

506 Principles of Pharmacology 3 Prereq MBioS 513 or c/.. Same as P/T 506.

507 Principles of Therapeutics 3 Prereq 300-level organ/mammalian physiology; P/T 506. Same as P/T 507.

509 Affective Neuroscience 3 Prereq graduate standing. Graduate-level counterpart of Neuro 409; additional requirements. Credit not granted for both Neuro 409 and 509.

520 Fundamentals of Neuroscience 4 (3-3) Prereq permission of instructor or graduate standing. Functional aspects of the brain from cell membrane to higher integrative processes. Cooperative course taught by WSU, open to UI students.

521 Introduction to Veterinary Neurology 3 (2-3) Prereq V M 510P. Same as V M 521P. S, M, F grading.

522 Domestic and Exotic Animal Behavior 2 (1-3) Prereq by interview only. Same as V M 526P. S, M, F grading.

529 Integrative Neuroscience 3 Prereq graduate standing; biochemistry course. Basic biochemical processes in the nervous system and their significance for normal and abnormal function. Cooperative course taught by WSU, open to UI students (Zodi 529).

531 Neuroscience Laboratory Rotation 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. Prereq graduate standing. Fourteen-week rotation through each of two research laboratories; learning procedures and techniques in neuroscience. S, F grading.

540 Special Topics in Integrative Neuroscience 3 Prereq graduate standing. Concepts and controversies in neuroscience involving integrative properties of cell systems. May be repeated for credit; cumulative maximum 6 hours.

541 Special Topics in Cellular and Molecular Neuroscience 3 Prereq graduate standing. Concepts and controversies in neuroscience that involve nerve cell function and regulation. May be repeated; cumulative maximum 6 hours.

542 Special Topics in Disciplinary Neuroscience 3 Prereq graduate standing. Concepts and controversies in neuroscience that revolve around traditional approaches to nervous system study. May be repeated; cumulative maximum 6 hours.

543 Special Topics in Behavioral/Clinical Neuroscience 3 May be repeated for credit; cumulative maximum 6 hours. Concepts and controversies in neuroscience that involve normal and pathological aspects of behavior.

553 Development and Plasticity of the Nervous System 2 Same as Biol 553. Cooperative course taught by UI (Biol 509), open to WSU students.

561 Biological Signal Processing 3 Development of quantitative models and analysis of neural systems. Cooperative course taught by UI (Neur 5231), open to WSU students.

577 Behavioral Pharmacology 3 Prereq Psych 574. Same as Psych 577.

579 Behavioral Neuroscience 3 Prereq Psych 574. Same as Psych 579.

584 Sensory Bases of Behavior 3 Prereq Psych 384. Same as Psych 584.

590 Seminar 1 May be repeated for credit; cumulative maximum 4 hours. Presented by advanced graduate students and faculty (both in VCAPP and around WSU) on their research areas. S, F grading.

592 Research Writing and Seminar 3 May be repeated for credit; cumulative maximum 6 hours. Written and oral communication of scientific information; formal instruction while preparing research proposals and departmental seminar.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

Intercollegiate College of Nursing

www.nursing.wsu.edu
ICN - Spokane
509-324-7337

Professor and Dean, P. Butterfield; Professor and Senior Associate Dean for Academic Affairs, A. Hirsch; Professor and Associate Dean for Research, M. Haberman; Professor and Assistant Dean for Academic Health Services, M. Bray; Professor and Director PhD Program, R. Bödler; Professor and Interim Assistant Dean RN/BSN Program, R. Hoeksel; Professors, Z. Higgs, R. Pringle; Associate Professor and Assistant Dean for Undergraduate Education, T. Bayne; Associate Professor and Assistant Dean/Regional Director, G. Guido; Associate Professors, M. Armstrong, J. Banasik, K. Busch, C. Corbett, D. Doutrich, B. Emerson, K. Miller, L. Schumm, B. Severtsen, M. Wood; Assistant Professor and Assistant Dean/Director RN/BSN Program, L. Dawson; Assistant Professors, S. Choppala, K. Daratha, L. Eddy, P. Eide, M. Johnson, L. Kaplan, S. Kardong-Edgren, J. Katz, J. P. Paruth, M. Sobralske, R. Vandermause, Research Professors, R. Bendel, M. Scott-Brown; Clinical Associate Professor and Assistant Dean Advancement and External Relations, A. Duplar; Clinical Associate Professors, C. Allen, R. Cardell; Clinical Assistant Professors, L. Hahn, M. Rasmor; Senior Instructors, P. Aamodt, J. Lohan, J. Meyers, J. Spuck, M. Stucky, D. Swain; Instructors, J. Adams, C. Boonpongmanee, D. Brinker, T. Buxton, S. Carollo, S. Fleming, D. Franck, A. Fulton, G. Gass, E. Gillingham, C. Graf, C.

**BACCALAUREATE PROGRAM**

The Intercollegiate College of Nursing was established July 1, 1968 and exists as a joint endeavor of Washington State University, Eastern Washington University, Gonzaga University and Whitworth College. Its cooperative undergraduate program is the first of its kind among colleges and universities in the United States. The program is designed for two types of students - those with no previous preparation in nursing and registered nurses. The curriculum is four academic years of full-time study for the student with no previous preparation in nursing. The length of the program for the registered nurse (RN) is approximately one year of full time study.

The lower-division courses, for students with no previous preparation in nursing (freshman and sophomore years), are offered on the Pullman campus. They provide the student with a foundation in the natural and social sciences and the humanities.

The 300-400-level courses, junior and senior years, are offered at the Intercollegiate College of Nursing in Spokane, Tri-Cities and Yakima. They provide the professional preparation in nursing. To apply for admission to the college, students must have at least 60 semester hours and all courses prerequisite to nursing completed the term prior to enrollment in the upper division.

The program of study leads to the degree of Bachelor of Science in Nursing. It is approved by the Washington State Nursing Care Quality Assurance Commission and the American Association of Colleges of Nursing and accredited by the National League for Nursing. Upon successful completion of the baccalaureate program, graduates are eligible to take the state examination for licensure as registered nurses.

**Transfer Students**

Students who plan to transfer to nursing at Washington State University from other institutions should discuss their program early with the nursing advisor on the Pullman campus to select courses that will be applicable to the degree requirements. Registered nurses who plan to obtain their baccalaureate degree in nursing from Washington State University may obtain admission and curriculum information from their nursing advisors on the Pullman, WSU Tri-Cities and WSU Vancouver campuses.

**Learning Outcomes**

We expect our graduating students will be able to: (1) provide competent nursing care to individuals, families, groups and communities through promotion, maintenance and restoration of health; prevention of illness, and physical, emotional, and spiritual support throughout the life span; (2) formulate nursing practice decisions using evolving knowledge and research from nursing practice decisions using evolving knowledge and research from nursing science, the biological and behavioral sciences, and the humanities; (3) use developmentally appropriate teaching-learning principles to assist clients to achieve their health goals and to assist colleagues to improve the quality of their nursing care; (4) provide compassionate, ethical care to individuals of diverse cultures, values, beliefs, and lifestyles; (5) demonstrate the values central to nursing practice including: altruism, autonomy, human dignity, integrity, and social justice; (6) protect the rights of people to receive optimum care and make informed decisions affecting their health and welfare; (7) uphold the standards and values of the profession including accepting responsibility for learning and personal growth; (8) interpret professional nursing using perspectives gained from past, present, and future trends in nursing and society; (9) advocate for responsible, humane health care policies; (10) partner with clients, families, communities and interdisciplinary health care teams to design and provide quality health care; (11) participate in revision of health care policy and practice within a rapidly changing global environment; (12) demonstrate leadership skills and knowledge of the management process in designing, managing and coordinating care; (13) use evolving information technology to monitor and improve the health care of clients; and (14) demonstrate knowledge of fiscal dimensions with a variety of current and evolving health care systems.

**MASTER OF NURSING PROGRAM**

The program may be completed in two academic years. Provision is made for part-time matriculation over a longer period of time, subject to policies and requirements of Washington State University and the ICN. Candidates for the MSN degree are required to demonstrate competency in relevant computer applications. A thesis or specified non-thesis option is required.

The graduate program in nursing at the Intercollegiate College of Nursing was established in 1983 and has been accredited by the National League for Nursing (NLN) since 1986 and by the American Association of Colleges of Nursing. The program builds upon an undergraduate baccalaureate degree in nursing and provides a basis for further study at the doctoral level. The purpose is to prepare students for leadership positions in advanced nursing practice. Community-based/population-focused nursing, psychiatric/mental health nurse practitioner, and family nurse practitioner specializations are available.

The Master of Nursing program is open to students who hold a Bachelor of Science in Nursing degree from a nationally recognized accrediting agency. Admission is granted on the basis of the student’s (1) undergraduate GPA, (2) skills in history taking and physical assessment, (3) completion of a course in basic descriptive and inferential statistics, (4) eligibility for licensure as a registered nurse in Washington state, and (5) recommendations relative to professional nursing competence and prediction of success as a graduate student. A written interview is required for family nurse practitioner applicants.

Students apply to the Graduate School office in Pullman and the Graduate Program office at the Intercollegiate College of Nursing. Program information, determination of student interests and goals, and assignment of a faculty advisor are provided by the Graduate Program office at the Intercollegiate College of Nursing. For further information, visit: nursing.wsu.edu.

We expect that our graduating students: (1) collaborate in the conduct of research with faculty and community of scholars; (2) provide leadership in planning, implementing, coordinating, and evaluating health care delivery; (3) participate in the formulation of health policy appropriate to a diverse and multicultural society; (4) model and influence the values of the profession of nursing; (5) assume responsibility and accountability for enacting the role of an advance practice nurse within the scope of legal, professional, and ethical standards; (6) integrate theories from nursing and other sciences to provide high quality nursing care; (7) provide evidence-based practice in a variety of settings through the promotion, maintenance, and restoration of health and the prevention of illness; (8) deliver culturally competent nursing and health care; and (9) provide direct client care to individuals, families, and or communities consistent with the knowledge and skills appropriate to advance practice nursing.

**Schedules of Studies**

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

**NURSING REQUIREMENTS** (129 HOURS)

Fifty-nine semester hours are required in 300-400-level nursing major courses. Additional 300-400-level nursing or non-nursing electives may be required.

A grade of C or better is required in all prerequisite courses and nursing courses.

Criteria for admission to the 300-400-level nursing major include an overall cumulative GPA of 2.8 or higher and a cumulative GPA of 2.8 or higher in prerequisite courses. Responses to personal interview questions may be used as additional admission criteria.

Part-time schedule of study is available; see advisor.

**First Year**

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<thead>
<tr>
<th>Course</th>
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<tr>
<td>Chem 101 [P] (GER)</td>
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<td>Engl 101 [W] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Psych 105 [S] (GER)</td>
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<td>Soc 101 [S] or 102 [S] (GER)</td>
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**Second Term**

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<tr>
<td>Biol 102 or 103 [B] (GER)</td>
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<td>Chem 102 [P] (GER)</td>
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<td>307 Assertiveness Training for Nurses</td>
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<td>308 Professional Development I: Research and Informatics</td>
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<td>311 Pathophysiology and Pharmacology in Nursing</td>
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<td>316 Introduction to Nursing Practice in Health and Illness: Theory</td>
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<td>317 Health Assessment</td>
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<td>318 Growth and Development Across the Life Span</td>
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<td>322 The Human Experience of Diversity and Health</td>
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<td>324 Nursing Concepts in Acute and Chronic Illness in the Adult</td>
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<td>326 Introduction to Gerontological Nursing</td>
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<td>365 Nursing Concepts: Assessment and Application of Physiological Concepts to Nursing Practice I</td>
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<td>366 Nursing Concepts: Assessment and Application of Physiological Concepts to Nursing Practice II</td>
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<td>406 Nursing Leadership</td>
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<td>408 Professional Development III: Leadership and Management</td>
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<td>409 Professional Development IV: Transition to Practice</td>
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414 Child and Family Health: Theory 3 Prereq Nurs 324, 325; c// Nurs 318, 328. Analysis and evaluation of scientific and theory base for nursing care of children and families.

415 Children and Families as the Focus of Nursing Care 3 (1-6) Prereq Nurs 324, 325; c// Nurs 318, 328, 414. Synthesis and application of underlying science and nursing process with the unique population of children and families. S, F grading.

416 Childbearing Health of the Family 3 Prereq Nurs 324, 325; c// Nurs 318, 328. Care of childbearing families within the context of community; newborn health, and men's and women's reproductive health addressed.

417 Nursing Care of Childbearing Families 2 (0-6) Prereq Nurs 324, 325; c// Nurs 318, 328. Care of childbearing families during the childbearing continuum and/or acute care settings; combination of clinical and seminar. S, F grading.

424 Psychiatric/Mental Health Nursing Concepts 3 Prereq Nurs 414, 415, 416, 417. Healthy to psychopathological states studied within a nursing framework; includes history, theories, legal/ethical issues of psychiatric/mental health nursing.

425 Nursing Practice: Psychiatric/Mental Health 2 (0-6) Prereq Nurs 414, 415, 416, 417; c// Nurs 424. Clinical application of the nursing process with clients experiencing acute and chronic psychiatric/mental health disorders. S, F grading.

426 Community Health Nursing Theory 2 Prereq Nurs 414, 415, 416, 417. Synthesis of nursing and public health concepts with emphasis on community as partner and population-focused practice.

427 Community Health Nursing Practice 3 (0-9) Prereq Nurs 414, 415, 416, 417; c// Nurs 426. Promoting the public's health through application of the public health functions; assessment, policy development, and assurance. S, F grading.


440 Nursing Concepts: Community Health 2 Synthesis of nursing and public health concepts with focus on community as partner, and population-based practice.

462 Selected Nursing Concepts: Psychiatric/Mental Health 2 Nursing process with individuals and families experiencing psychiatric/mental health disruptions.

465 Nursing Practice: Community and Psychiatric Mental Health 3 (0-9) Prereq Nurs 462 and 440 or c//. Application of community health, public health, and psychiatric/mental health nursing concepts to individuals, families, and communities with identified health needs.

476 Health Law: Application to Practice 3 Prereq junior standing. Laws, principles and issues related to regulations of health care professionals, practice settings and public and private programs.

477 Health Care Ethics 2 or 3 Ethical theories including deontology, teleology, virtue ethics and applicability to ethical dilemmas in nursing. Credit not granted for both Nurs 477 and 577.

478 Plateau Tribes: Culture and Health 2 (2-3) Prereq junior/senior in health care of human services/health professionals. History, culture, and health care needs of the Plateau Indian tribes; both classroom and practicum experience. Credit not granted for both Nurs 478 and 578.

479 Advanced Physiology for Clinical Practice 3 Prereq Admission to WSU nursing program. Cellular and system physiology foundational to advanced practice and understanding drug mechanisms of action.

480 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

481 International Health Care 3 Prereq Nurs 315. Study abroad experience in global health care; assessment and evaluation skills in planning and implementing culturally appropriate health care for individuals and communities.

490 Basic Dysrhythmia Interpretation/Advanced Cardiac Life Support 2 Prereq completion of Nurs 420 or c// or permission of instructor. Basic interpretation of common ECG rhythms, dysrhythmias, and application of ACLS dysrhythmia management guidelines.

491 Advanced Cardiac Life Support (ACLS) and Laboratory Value Analysis and Interpretation 3 Prereq Nurs 311, 324, 325 or by permission. Analysis/interpretation of common laboratory values; basic interpretation of common ECG rhythms, dysrhythmias, and application of ACLS dysrhythmia management guidelines.

492 Essentials of Disaster Management for Nurses 3 Prereq junior standing; certified nursing major. Natural and manmade disasters; nursing implications for disaster management; mental health and ethical issues and concerns related to vulnerable populations.

495 Nursing Practice: Advanced Clinical Practicum 2 (0-6) Prereq certified in nursing. Application and integration of theoretical content in an area of nursing practice of special interest to the student.

497 Special Topics in Nursing V 1-3 May be repeated for credit; cumulative maximum 6 hours.

498 Special Topics in Nursing V 1-3 May be repeated for credit; cumulative maximum 6 hours.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

503 Scientific Inquiry in Nursing 2 Prereq graduate standing in nursing or permission of the instructor. Scientific inquiry applied to theoretical and philosophical foundations in nursing.

504 Methods of Nursing Research 1 Prereq Nurs 503 or c//. Research process as foundational to both conduct of scientific inquiry and utilization of findings.

507 Health Care Policy Analysis V 2 or 3 Prereq graduate standing. Analysis of health care system policy; exploration of issues of clinical management and community resource utilization including advocacy techniques.

519 Teaching in the Information Age 3 Prereq basic computer skills; permission of instructor. Focus on educational paradigms consistent with distance education; development of a variety of multimedia materials for nursing education.

520 Nursing Education in a Multicultural Society V 3 (0-9) to 5 (0-15) Prereq permission of instructor. Application of learning theories and strategies useful in teaching diverse populations; taught in a distance degree format.

521 Teaching, Learning and Evaluation in Nursing V 3 (3-0) to 5 (3-6) Prereq graduate standing in Nurs or by permission. Exploration of concepts related to teaching-learning; assessment of diverse learning needs, instructional strategies and design, evaluation of performance outcomes.

523 Educational Issues and Curriculum Analysis V 3 (3-0) to 5 (3-6) Prereq graduate standing in nursing or by permission. Exploration of curriculum history, development, future predictions; program evaluation, instructional resources, leadership, and policy development in academic and service settings.

534 Research Seminar: Grant Development 1 Prereq graduate standing. Seminar focusing on grant writing and advanced skills for critically reviewing grant applications.

535 Philosophy of Nursing Science 2 Prereq Nurs 534; 535 or c//. Structure and organization of fields of knowledge in science including historical and philosophical tenets of inquiry.

536 Nursing Theory: Foundations for Knowledge Development 2 Prereq graduate standing in nursing. Theory development analysis; theory critique; nursing knowledge examination; impact of theory on nursing science, applied to student's phenomenon of interest.

537 Role Analysis: Advanced Practice 2 (1-3) Prereq admission to FNP program. Emphasis on role analysis including interdisciplinary relationships, consultative skills, responsibility, activities, and functions of the advanced practice nurse.

538 Technology in Nursing 2 Prereq graduate standing in nursing. Impact of technology in nursing practice, research and education with resulting changes in roles, practice models and values.
540 Family and Partner Psychotherapy 4 (2-6) 
Prereq Nurs 541, 543; psych/mental health nursing major or permission of instructor. 
Introduction to theory and practice of family/ partner therapy including role of therapist in 
treatment of family as a unit.

541 Psychiatric/Mental Health Nursing: 
Individuals 4 (3-3) Prereq graduate standing in 
nursing; Nurs 562; 581 or c/. Theories of 
psychopathology and appropriate nursing 
interventions with individuals across the age 
continuum.

542 Role Development and Practice 
Management for the Psychiatric Mental 
Health Practitioner 2 Prereq admission to 
The PMHNP program or permission of instructor. 
Advanced practice role development, definition 
of scope and standards of independent and 
collaborative practice of the psychiatric nurse 
practitioner.

543 Psychiatric Mental Health Nursing 
4 (3-3) Prereq Nurs 541, 581. Introduction to 
theory and practice of group psychotherapy; 
Milleu and other selected theories studied and 
applied to nursing practice.

545 Advanced Concepts of Psychiatric/ Mental Health Nursing: Children and 
Adolescents 5 (3-6) Prereq Nurs 541, 543 or 
permission of instructor. Advanced study of 
intervention models for psychopathologies 
evidenced during childhood and adolescence; 
practicum emphasizes assessment, 
psychiatric diagnosis, and psychotherapeutic 
intervention.

546 Practicum in Psychiatric/Mental Health 
Nursing 4 (1-9) or S (1-12) Prereq Nurs 541, 
543, 562, 581; PhapP 525 or c/. Individualized 
clinical experience/seminar designed to 
provide advanced competency, accountability, 
leadership in psychiatric/mental health 
nursing.

548 Psychiatric Nurse Practitioner 
Internship I V 1-9 May be repeated for credit; 
cumulative maximum 9 hours. Prereq Nurs 
546, PhapP525, by interview only. Application 
and integration of theory, research findings, 
and interventions in the primary care of clients 
with psychiatric disorders.

549 Addiction Perspectives 2 Prereq Graduate 
standing in nursing or permission of instructor. 
Overview of the theories, physiology, course 
and epidemiology of addictions; assessment, 
evaluation, prevention and treatment.

550 International, Interdisciplinary, 
and Transcultural Health Care 3 Prereq 
graduate standing in nursing or by permission. 
Diverse health beliefs and practices or clients 
and members of the interdisciplinary health 
care team.

552 Family Nursing in the Community 
V 2-4 Theoretical approaches to the analysis 
of normal and at-risk families; application of 
family assessment and intervention models 
when planning care.

554 Epidemiological Approaches to 
Community Health 3 Prereq graduate 
standing in Nurs. Epidemiological application 
to health; implications for health promotion, 
disease prevention; focus: knowledge and skills 
required to obtain and use databases.

555 Community-Based/Population-Focused 
Nursing Internship V I-9 May be repeated 
for credit; cumulative maximum 9 hours. Prereq 
Nurs 550, 552, 554, 556, 564, or permission 
of instructor. Application and integration of 
theory, research findings, and community 
analyses/macro-level intervention strategies 
in performing community-based/population- 
focused nursing. S, F grading.

556 Community-Based/Population-Focused 
Role Practicum V I (2-3) to 6 (2-12) 
Prereq permission of instructor. Culminating 
analysis, development, and enactment of 
advanced practice roles in teaching, practice, 
or administration of community-based/ 
population-focused nursing.

557 At-Risk Populations in the First Decade 
of Life 3 Prereq admission to FNP program. 
Analysis of biopsychosocial health risks of 
the first decade of life using models of risk and 
resiliency in advanced nursing practice.

558 Care Management with At-Risk Older 
Child and Adolescent Populations 3 
Prereq graduate standing in nursing or by 
permission. Analysis of biopsychosocial health 
risks of older children and adolescents using 
models of risk and resiliency in advanced 
nursing practice.

559 Advanced Nursing Practice with At-Risk 
Child and Youth Populations Practicum 
V I (2-4) Prereq graduate standing in nursing 
or by permission; Nurs 557 and 558 or c/. 
Application of concepts/models of childhood 
and adolescents in advanced nursing practice with 
community-based at-risk children and 
adolescents.

560 Promoting Health of Community-Based 
Adults V I (2-0) to 4 (2-6). Analysis and 
evaluation of strategies, interventions, and 
programs to promote the health of at-risk adult 
community populations.

561 Advanced Assessment and Diagnosis 
for the Psychiatric Mental Health 
Practitioner 3 Prereq Admission to PMHNP 
program. Assessment and diagnosis of 
psychiatric illnesses; focus on physical and 
psychiatric history, mental status exam and 
thoughts of psychometric evaluation.

562 Advanced Health Assessment and 
Differential Diagnoses 4 (3-3) Prereq 
graduate standing in nursing. Advanced 
holistic health assessment/differential 
diagnosis; analysis of data from biological, 
sociological, psychological, cultural, and 
spiritual dimensions.

563 Advanced Pharmacological Concepts and 
Practicum 4 (3-3) Prereq graduate standing 
in nursing. Pharmacology for clinical practice 
including decision making, prescribing, drug 
monitoring, and patient education associated 
with prescriptive authority.
578 Plateau Tribes: Culture and Health 3 (2-3)
Prereq junior/senior in health care of human services/health professionals. Graduate-level counterpart of Nurs 478; additional requirements. Credit not granted for both 478 and 578.

579 Vulnerable Populations: The Homeless 3 PreReq graduate standing in nursing or by permission. Analysis of factors placing persons at risk for homelessness; proposal of policy changes based on research and experiential learning.

581 Advanced Pathophysiology 4 Prereq graduate standing in nursing or permission of instructor. Advanced cellular and system pathophysiology of individuals with neurological, endocrine, immune, hematologic, cardiopulmonary, renal, gastrointestinal, bone and skin disorders.

583 Promoting Health of Community-Based Elders V 2 (2-0) to 4 (2-6) Prereq graduate standing in nursing. Advanced practice role in assessment, nursing intervention and public policy regarding multidimensional physical, emotional, and social problems of community-based elderly.

584 Nursing Science: Systems of Health Care Delivery 3 Prereq Nurs 536. Health care delivery systems in the US and worldwide addressing barriers to care, social justice, vulnerability and access disparity.

585 Faculty Role Seminar 1 Prereq completion of coursework; completion of preliminary examination or c/. Analysis of current issues related to the faculty role in nursing education.

586 Faculty Role Practicum 2 Prereq admission to graduate program or by permission. Analysis, development and enactment of selected aspects of the faculty role.

587 Research Inquiry: Qualitative Methods I 3 Prereq graduate standing in nursing. Qualitative methodologies, issues and techniques of data collection, analysis and interpretation; issues of ethics and bias.

588 Research Inquiry: Quantitative Methods I 3 Prereq graduate standing in nursing. Quantitative methodologies, issues and techniques of data collection, analysis and interpretation.

589 Psychometrics in Health Care Research 2 Prereq Nurs 588; 6 credits of graduate statistics. Application of psychometric theory and techniques for constructing, analyzing and testing instruments to measure nursing and educational interventions and outcomes.

590 Research Inquiry: Quantitative Methods II 2 Prereq Nurs 588; Nurs 589. Advanced theoretical and practical application of selected quantitative and methodological strategies.

591 Mixed Methods for Outcome Evaluation 2 Prereq graduate standing in nursing. Outcomes and evaluation in nursing and health care from both a qualitative and quantitative methods and application perspective.

592 Research Inquiry: Qualitative Methods II 2 Prereq Nurs 587. Application of qualitative methodologies, techniques of qualitative data analysis, presentation of qualitative findings, rigor, data management and research dissemination.

593 Preliminary Examination Seminar I Prereq completion of 30 core credits in PhD program. Methods to synthesize material from coursework to present and analyze scholarly nursing science knowledge. S, F grading.

595 Internship V 1-10 May be repeated for credit; cumulative maximum 10 hours. Prereq admission to FNP program; Nurs 562, Nurs 563, Nurs 581; one of Nurs 567, 568, 569, 571, or 572. Application and integration of theoretical content, research findings, and assessment and intervention strategies into primary care practice. S, F grading.

596 Post-Master’s Psychiatric Nurse Internship V 1-9 May be repeated for credit; cumulative maximum 9 hours. Prereq completion of course work for a clinical nurse specialist in psychiatric mental health nursing or psychiatric nurse practitioner, malpractice insurance as an ARNP with prescriptive authority, by interview only. Supervised performance of the ARNP role in psychiatric nursing care for patients presenting primary psychiatric disorders.

597 Advanced Topics in Nursing V 1-3 May be repeated for credit; cumulative maximum 6 hours.

598 Advanced Topics in Nursing V 1-3 May be repeated for credit; cumulative maximum 6 hours.

599 Independent Study Variable credit S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

799 Dissertation Seminar I May be repeated for credit. Prereq graduate student in nursing. Best practices for doctoral research and presentation. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

College of Pharmacy

www.pharmacy.wsu.edu
Wagner 105
509-335-5901

Pharmacy: Dean and Professor, J. P. Kehrer; Associate Dean and Clinical Professor, C. A. Elstad; Associate Dean and Professor, D. E. Baker; Assistant Dean and Associate Professor, M. W. Garrison.

Pharmaceutical Sciences: Professor and Acting Chair, R. M. Quock; Professors, J. P. Kehrer, G. G. Meadows, K. E. Meier; Associate Professors, M. E. Black, S. S. Davaud, N. M. Davies; Assistant Professors, A Hatifi, D. W. Koy; Clinical Associate Professors, S. L. Chambers-Fox, C. A. Elstad.


Health Policy Administration: Associate Professor and Director of the Program in Health Sciences, S. E. Blank; Associate Professors, E. C. Johnson, M. Houghton (University of Idaho); Clinical Assistant Professors, J. Beaty, S. Kynast-Gales, R. Lutz (adjunct), M. McMullin (adjunct); Clinical Instructors, J. Knuth, J. Troppmann (adjunct).

The College of Pharmacy offers a course of study leading to a Doctor of Pharmacy (PharmD) degree. The PharmD schedule of studies involves four professional years. The third professional year of the PharmD curriculum is delivered in the Health Sciences building located on the Washington State University Spokane campus. The fourth professional year of the PharmD curriculum consists of advanced experiential training, in which students will be assigned to one of the following geographic locations: Spokane, Yakima, Vancouver, Tri-Cities, Tacoma or Pullman. They will be expected to complete the majority of their rotations in their assigned geographic locations. Students will gain experience in a variety of health care environments, including community, institutional, and long-term care settings. Ninety-four students are enrolled annually in the fall in the first professional year of the PharmD program. Pre-pharmacy requirements are listed under Pharmacy in this catalog.

The application period each academic year is from October 1 to February 1. Although a bachelor’s degree is not required for admission, pre-requisites for admission require more than two years of pre-pharmacy education. Because the number of applicants to the professional program exceeds the number that can be admitted, no assurance can be given that those who successfully complete the pre-pharmacy requirements will be admitted to the Doctor of Pharmacy program. For additional information regarding the Doctor of Pharmacy curriculum, please see the College of Pharmacy home page at www.pharmacy.wsu.edu, or contact the College of Pharmacy Office of Student Affairs at 509-335-1402.

We expect our Doctor of Pharmacy graduates to successfully achieve the following competency-based outcomes:

Outcome 1—Knowledge Acquisition and Critical Thought: The graduate shall acquire, analyze, synthesize, and apply knowledge in biomedical, pharmaceutical, and clinical sciences to facilitate positive therapeutic outcomes and prevent drug therapy related misadventures.

Outcome 2—Communication: The graduate shall acquire a repertoire of verbal, non-verbal, and written communication skills, demonstrate
professional level competency in applying these skills in a variety of cultural and practice contexts, and select appropriate methods for use in all facets of pharmacy practice.

Outcome 3—Professionalism: The graduate shall practice ethically within the boundaries of the laws of pharmacy; uphold values and integrity embodied in the practice of pharmacy, and provide leadership/ 
influence for the improvement of the profession.

Outcome 4—Knowledge of the Profession, Professional Development, and Public Service: The graduate shall thoroughly understand the profession, assume responsibility for continuous professional development, and provide leadership/ 
influence for the improvement of the health and wellness of individuals and society.

Outcome 5—Medication Therapy Management: The graduate shall integrate and apply requisite biomedical, pharmaceutical, and clinical sciences, and communication skills, to evaluate, design, implement, and monitor optimal patient-centered pharmacotherapy plans, educate patients, identify and resolve drug related problems, and assure patient safety.

Outcome 6—Management Systems, Processes and Operations: The graduate shall understand multiple factors/perspectives in US healthcare systems delivery; medication distribution, control, and quality management systems; and pharmacy management systems, policies, and operations to optimize patient/population outcomes.

### Pharmacy Prerequisites for Admission to the Professional Pharmacy Program

#### University GER Requirements
- [W] Written Communication I – 3 credits
- [C,W] Speech Communication – 3 credits
- [H, S, D] American Diversity – 3 credits
- [I,G,K] Intercultural Studies – 3 credits
- [A] World Civilizations – GenEd 110 and 111 – 6 credits

#### Pharmacy Specific GERs
- [W] Written Communication II – 3 credits
- [H] Philosophy – Logic, Critical Thinking or Ethics – 3 credits
- [S] Microeconomics – EconS 101 – 3 credits
- [S] Introductory Psychology – Psych 105 – 3 credits

#### Pharmacy Science Requirements
- Calculus – Math 140 or 171 or 202 – 4 credits
- Statistics – Stat 212 – 3 credits
- Introductory Biology – Biol 106 and 107 – 8 credits
- Principles of Chemistry – Chem 105 and 106 – 8 credits
- Organic Chemistry – Chem 345 and 346 – 7 credits
- Microbiology – MBioS 305 – 5 credits
- Human Anatomy with lab – Biol 315 – 4 credits
- Mammalian Physiology – Biol 353 – 4 credits
- Biochemistry – MBioS 303 – 4 credits
- Immunology – MBioS 440 – 3 credits
- Genetics or Molecular Genetics – Biol 301, or MBioS 404 – 3 credits

### Schedules of Studies

**Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.**

#### PROFESSIONAL CURRICULUM (134 HOURS)

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<td>PharP S50</td>
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### Fourth Year

The fourth professional year begins in May immediately following the end of the spring semester of the third professional year. Students must complete 5 credits of each advanced practice experience listed for a total of 42 weeks during the fourth professional year of the program.

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<tr>
<th>First Term</th>
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<tr>
<td>Advanced Pharmacy Practice Experiences (APPE)¹</td>
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<td>Advanced Pharmacy Practice Experiences (APPE)³</td>
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### Description of Courses

#### Pharmacy Practice Courses

**PharP**

**450 Wellness and Preventive Medicine** 3  
Principles and techniques of health education and preventive medicine.

**451 Pharmacy Practice** 2  Prereq first-year pharmacy student. Introductory foundation to pharmacy practice including discussion, debates and practical application to establish early connections, vision, professionalism and requisite critical thought processes.

**456 Early Practice Experience I** 1 (0-3)  
Prereq PharP 450. Practical experience which introduces knowledge and skills related to patient education, disease management, and medical self-care. For PharmD students only. S, F grading.

**457 Early Practice Experience II** 1 (0-3)  Prereq PharP 450, 456. Continued practical experience in using knowledge and skills related to patient education, disease management, and medical self-care as well as one-on-one mentoring of other students. For PharmD students only. S, F grading.

**499 Special Problems** 1-4 May be repeated for credit. S, F grading.

**500 P Pharmacy Practice Foundations** 2  Prereq admission to PharmD program. Perspectives into the profession of pharmacy; pharmacy law, ethics, and careers.
501 P Applied Patient Care I: Patient Assessment 1 (0-3) Prereq admission to PharmD program. Laboratory course teaching hands-on physical assessment techniques from a pharmacy perspective, to provide patient-specific care. S, F grading.


505 P Applied Patient Care V: Integrated Patient Care 1 (0-3) Prereq PharP 504. Integration of pharmaceutical care with an interdisciplinary emphasis using patient cases and human patient simulation.

510 Introduction to Therapeutic Agents: Top 200 Drugs 1 (0-3) Prereq admission to PharmD program. Drugs most frequently prescribed in the US as a basis for pharmacy practice.


516 P Advanced Pharmacotherapeutics VI 1 Pharmacotherapy of hematology and oncology diseases. S, F grading.


519 P Advanced Pharmacotherapeutics VIII 1 Pharmacotherapy of neuropsychiatric disorders. S, F grading.

520 P Pharmacy Law and Regulatory Affairs 3 Prereq admission to PharmD program. Legal and ethical pharmacy practice including licensing, patient privacy protection, order fulfillment and contracts.

521 P Professional Communications Lab 1 (0-3) Prereq admission to PharmD program. Professional communication skills as an essential foundation for career development.

522 P Professional Communications and Integrated Colloquium 1 (0-2) Prereq PharP 521. Practice in eliciting information from patients, initiating educational interventions and demonstrating sensitivity to cultural factors.

525 P Practical Psychiatric Drug Therapy for Clinicians 3 Prereq Nurs 311 or graduate standing in nursing program. Review of practical psychiatric drug therapy for physicians, pharmacists, mental health professionals, and others working in the mental health field.

526 P Early Pharmacy Practice Experience 4 (0-12) Prereq completion of first year of PharmD program. Authentic practice situations and service learning with opportunities for discussion and reflection.

527 P Intermediate Pharmacy Practice Experience 4 (0-12) Prereq completion of second year of PharmD program. Authentic practice situations and service learning with opportunities for discussion and reflection.

530 P Health Care Systems 2 Prereq admission to PharmD program. US healthcare system, financing of health care delivery and the role of the pharmacist.

531 P Clinical Research Methods I: Pharmacoeconomics 2 Prereq PharS 533P, PharP 552P. Pharmacoeconomics and biostatistics.

538 P Parenteral Products 2 (1-3) Prereq PharS 437P, 533P. Preparation of intravenous admixtures, parenteral nutrition; pharmacotherapy of fluid/electrolyte disorders, parenteral nutrition, and emergency medications.

540 P Biostatistics and Population Based Health 3 Prereq admission to PharmD program. Research process; biostatistics, pharmacoeconomics, pharmacoepidemiology and evaluation of quality of life emphasizing application and interpretation.


542 P Nonprescription/Herbal Products 2 Prereq PharS 553P, 558P. Pharmacotherapy of nonprescription medications and herbal products.


544 P Pharmacotherapy II 4 Prereq PharP 543; PharS 500 and 552. Pharmacotherapy of infectious disease, cancer, immunologic and endocrine disorders; herbal medicines.

545 P Pharmacotherapy III 4 Prereq PharP 544; PharS 553. Pharmacotherapy of respiratory disorders, men's health issues, women's health issues, GI disorders and psychiatric disorders.

546 P Pharmacotherapy IV 3 Prereq PharP 545. Pharmacotherapy of nutrition, bone and joint disorders, pain management and liver, kidney and blood disorders.

550 P Drug Information and Literature Evaluation 3 Prereq PharP 540. Evaluation of drug information in pharmaceutical and biomedical literature to provide better patient care.

552 P Pharmacotherapy I 5 Prereq PharS 533P, 543P. Series of modules that provide the foundation of pathophysiology and treatment of various diseases.

553 P Pharmacotherapy II 5 Prereq PharP 552P, PharS 543P. Series of modules that provide the foundation of pathophysiology and treatment of various diseases, including infectious diseases, cancer chemotherapy, renal impairment, and critical care issues.

554 P Pharmacotherapy III 5 Prereq PharP 552P, PharS 543P. Series of modules that provide the foundation of pathophysiology and treatment of various diseases, including cardiovascular diseases, endocrine disorders, psychiatric disorders, and neurological disorders.

555 P Special Topics 2 Contemporary issues in pharmacy.

556 P Applied Clinical Pharmacokinetics 2 Prereq PharS 530. Clinical applications of pharmacokinetics including theoretical background and application to patient care.

557 P Clinical Pharmacokinetics 1 (0-3) to 2 (1-3) May be repeated for credit; cumulative maximum 2 hours. Prereq PharS 533. Applications of pharmacokinetic principles to safe and effective therapeutic management of individual patients in a clinical setting.

558 P Literature Evaluation 2 Prereq PharP 553P or cr/l. An overview of the biomedical literature emphasizing how to evaluate the pharmaceutical and biomedical literature to provide better patient care.

560 P Advanced Therapeutics 3 Prereq PharP 545. Advanced pharmacotherapy in complex patients including cardiovascular diseases, infectious diseases and endocrine disorders.

561 P Acute Care Advanced Practice Experience 1 (0-3) to 5 (0-15) Prereq PharmD didactic coursework completed. Advanced practice experience in acute care settings.

562 P Ambulatory Care Advanced Practice Experience 1 (0-3) to 5 (0-15) May be repeated for credit; cumulative maximum 5 hours. Prereq PharmD didactic coursework completed. Advanced practice experience in ambulatory care settings.
Pharmacy

563 P Elective I Advanced Practice Experience
V 1 (0-3) to 5 (0-15) May be repeated for credit; cumulative maximum 5 hours. Prereq PharmD didactic coursework completed. Advanced practice experience in acute or ambulatory patient care settings.

564 P Elective II Advanced Practice Experience
V 1 (0-3) to 5 (0-15) May be repeated for credit; cumulative maximum 5 hours. Prereq PharmD didactic coursework completed. Advanced practice experience in acute, ambulatory, or non-traditional patient care.

565 P Elective III Advanced Practice Experience
V 1 (0-3) to 5 (0-15) May be repeated for credit; cumulative maximum 5 hours. Prereq PharmD didactic coursework completed. Advanced practice experience in various health care settings.

566 P Community Advanced Practice Experience
V 1 (0-3) to 5 (0-15) May be repeated for credit; cumulative maximum 5 hours. Prereq PharmD didactic coursework completed. Advanced practice experience in a community pharmacy setting.

567 P Institutional Advanced Practice Experience
V 1 (0-3) to 5 (0-15) Prereq PharmD didactic coursework completed. Advanced practice experience in an institutional pharmacy setting.

568 P Extended Degree Advanced Practice Experience
V 1 (0-3)-20 (0-60) May be repeated for credit, cumulative maximum 20 hours. Prereq five pharmacotherapeutic weekend workshops completed. Advanced practice experience in various health care settings.

570 P Selected Topics in Pharmacy Practice
2 Prereq Pharm P 530, 540. Interactive course addressing economic, ethical and professional aspects of health care delivery.

571 P Quality Assurance and Patient Safety
2 Prereq admission to PharmD program. Patient safety issues including quality assurance, medication error avoidance and risk management in healthcare systems.

572 P Pharmaceutical Care Laboratory I
1 (0-3) Prereq Pharm P 451 or c//. Practicum designed to integrate classroom-acquired knowledge, behaviors and values into professional skills.

573 P Pharmaceutical Care Laboratory II
1 (0-3) Prereq Pharm P 572P or c//. Practicum designed to integrate classroom-acquired knowledge, behaviors and values into professional skills.

574 P [M] Pharmaceutical Care Laboratory III
2 (0-6) Prereq Pharm P 552P or c//, Pharm P 573P. Practicum designed to integrate classroom-acquired knowledge, behaviors, and values into professional skills.

575 P Pharmaceutical Care Laboratory IV
2 (0-6) Prereq Pharm P 553P or c//, Pharm P 574P. Practicum designed to integrate classroom-acquired knowledge, behaviors and values into professional skills.

576 P [M] Pharmaceutical Care Laboratory V
2 (0-6) Prereq Pharm P 554P or c//, Pharm P 575P. Practicum designed to integrate classroom-acquired knowledge, behaviors and values into professional skills.

577 P Parenteral Products
2 (0-4) Prereq Pharm P 546, 560; Pharm S 523. Preparation and administration of compounded parenteral products; patient case discussions and student presentations.

578 P Therapeutics of Special Populations
3 Prereq Pharm P 560. Special therapeutic needs of unique populations including pediatrics, chronic neurologic disorders, hospice care and immuno-compromised patients.

579 P Inter-professional Health Care
3 Prereq third year PharmD student. Interdisciplinary students (pharmacy, nursing, medicine) working and learning together using patient cases. S, F grading.

580 P Pharmacy Management
3 Prereq admission to PharmD program. Management principles essential for common practice settings in the profession of pharmacy.

581 P [M] Pharmacy Management
3 Management principles applied to pharmacy practice; health systems; patient care strategies.

582 P Pharmacy Law
3 Prereq third year standing. Laws relating to the practice of pharmacy. S, F grading.

583 P Patient Cases and Professional Presentations
1 (0-2) Prereq Pharm P 546. Professional presentation/communication skills in pharmacy; focus on public speaking in various formats.

589 Advanced Topics in Infectious Disease
1 Prereq Pharm P 552; Pharm P 553. Advanced knowledge of infectious disease topics covered in therapeutic PharmD coursework.

590 Advanced Topics in Infectious Disease
1 Prereq Pharm P 552; Pharm P 553. Advanced knowledge of infectious disease topics covered in therapeutic PharmD coursework.

591 P Medication Error Prevention
2 Prereq upper-division, certified health sciences major. Interdisciplinary responsibilities and approaches to detection and prevention of medication errors; practice in developing risk management plans for specific cases.

592 P Medical Devices for Home Health Care
2 Prereq second professional year pharmacy student. Review of medical devices used by patients for home care or self care and provision of recommendations to patients concerning these devices.

593 P Advanced Topics in Behavioral Health-Mental Health in the Media
1 Prereq Pharm P 552; Pharm P 553. Advanced knowledge of behavioral health topics covered in Therapeutics PharmD coursework through discussion and case-based teaching, and opportunities for students to think through diagnosis, treatment, complications, adverse effects, interactions, and monitoring parameters. S, F grading.

594 P Comprehensive Diabetes Management
3 Prereq current PharmD students who have completed the first semester of the pharmacy program. Multidisciplinary foundation for future health professionals in the principles of diabetes management, using self-paced, modular and internet-based alternative format for delivery. S, F grading.

595 Emergency Preparedness and Public Health Response
1 Prereq Pharm P 552. Terrorism and disaster emergency preparedness and the role of the pharmacist in the public health response. S, F grading.

599 P Special Projects
2 May be repeated for credit; cumulative maximum 4 hours. Laboratory research, clinical research, or comprehensive review of selected subjects. S, F grading.

Pharmaceutical Science Courses

Pharm

332 Pharmaceutical Calculations
1 (0-2) Prereq Math 140. The mathematics of prescription preparation and dispensing. S, F grading.

437 Pharmaceutics Laboratory
1 (0-3) Prereq Pharm S 531P or c//. Formulation and extemporaneous preparation of dosage forms.

499 Special Problems
V 1-4 May be repeated for credit. S, F grading.

500 P Pathophysiology with Medical Terminology
4 Prereq admission to PharmD program. Review of human physiology along with an overview of human pathophysiology, including medical terminology.

510 P Pharmacy Calculations
1 (0-3) Prereq admission to PharmD program. Familiarizes students with the drugs most frequently prescribed in the US, as a basis for pharmacy practice. S, F grading.

521 P Pharmaceutics I
3 Prereq admission to PharmD program. Principles of dosage form design and drug delivery, with an emphasis on physicochemical principles.

522 P Pharmaceutics II
2 Prereq Pharm S 521. Principles of dosage from design and drug delivery, with an emphasis on pharmaceutical technology and biopharmaceutics.

523 P Pharmaceutics Laboratory
1 (0-3) Prereq Pharm S 510, 521; c// Pharm S 522. Laboratory experience in the preparation of medicines. S, F grading.

530 P Pharmacokinetics
3 Prereq Pharm S 522. Qualitative and quantitative understanding of the processes of drug absorption, distribution and elimination.

531 P [M] Pharmaceutics I
3 Prereq Chem 345; Chem 346; Math 140. Physicochemical principles underlying the design of dosage forms; survey of materials and methods used in the manufacture of dosage forms; parenteral drug delivery.
Pharmacology and Toxicology

Pharmaceutics III 3 Prereq PharS 531P. The study of the interaction between dosage forms and various biological systems; drug delivery to the gastrointestinal tract, respiratory tract, eye and skin.

Pharmacodynamics 3 Prereq PharS 332, 531P, 532P. Pharmacokinetics of medication absorption, distribution, and elimination; medication regimen design.

Pharmaceutical Biotechnology 2 Prereq PharS 543P. Pharmaceutical and pharmacological properties of medications derived from biotechnology.

Immunology and Immunopharmacology 3 Prereq Biol 352; Chem 346; MBioS 303; MBioS 305; MBioS 306. Basic immunology and review of prevention and treatment of infectious diseases, cancer and immune-mediated pathology; includes theory, principles, and mechanism of action of immunomodulatory agents.

Pharmacological Basis of Therapeutics I 3 Prereq c// PharS 540P. Molecular pharmacology and drug action; drug development; genetic factors and biochemical processes involved in drug disposition; drug interactions; and micronutrients.

Pharmacological Basis of Therapeutics II 4 Prereq PharS 541P. Structure activity relationship, mechanism of action, medication-related effects, therapeutic uses, adverse reactions, and drug interactions of peripheral nervous system and cardiovascular medications.

Pharmacological Basis of Therapeutics III 4 Prereq PharS 542P. Structure activity relationship, mechanism of action, medication-related effects, therapeutic uses, adverse reactions, and drug interactions of endocrine and central nervous system medications.

Toxicology 2 Prereq PharS 542P, 556P. Mammalian toxicology emphasizing basic concepts, target organ toxicity, carcinogenesis, clinical toxicology, and the toxicology of natural products and dietary supplements.

Selective Toxicity 3 Prereq PharS 541P. Structure-activity relationships, mechanisms of action, and pharmacodynamics of drugs that demonstrate selective toxicity against microbes and tumor cells.

Integrated Pharmacology I 3 Prereq admission to PharmD program. Medicinal chemistry, drug metabolism, signal transduction, drug development and autonomic pharmacology.

Integrated Pharmacology II 4 Prereq PharS 551. Pharmacology of drugs acting on the cardiovascular system, peripheral sites and central nervous system.

Integrated Pharmacology III 4 Prereq PharS 552. Immunopharmacology (including immunizations), chemotherapeutics (antibiotics, antivirals, and anti-cancer drugs), and endocrine pharmacology.

Integrated Pharmacology IV 4 Prereq PharS 553. Pharmaceutical biotechnology, basic toxicology, pharmacogenomics and complementary and alternative medicines.

Pathophysiology 3 Prereq Biol 315. Mechanisms of major disease processes; cell injury, circulatory disease, inflammation, disturbances of growth, and neoplasia.

Program in Pharmacology and Toxicology

www.pharmacy.wsu.edu/PharmTox
Wegner Hall 305
509-335-7598


The sciences of pharmacology and toxicology are important to maintenance of human and animal health, food resources, and environmental quality. Pharmacologists and toxicologists study the interaction of chemicals with biological systems to understand their adverse effects and their useful effects for the treatment of disease. The Pharmacology/Toxicology program consolidates the research and teaching expertise of faculty primarily in the Colleges of Pharmacy (Pharmaceutical Sciences Department) and Veterinary Medicine (Neuroscience faculty). Because this program involves interdisciplinary studies, we have affiliate graduate faculty members from the following academic units at WSU: chemistry; entomology; molecular biology; and veterinary school.

Students entering the program should have completed undergraduate work in biology, chemistry (including organic chemistry and biochemistry), mathematics (through calculus), an upper division level organic/mammalian physiology course, and an undergraduate statistics course. We also welcome applications from applicants who have a professional degree in pharmacy. Course deficiencies may be rectified during the first year of graduate study, but this may hinder the student's ability to take core P/T courses in the first year. Students in both the MS and PhD programs are expected to develop an area of emphasis that is consistent with the research capabilities and interests of the faculty.

Each student in the program is required to complete the core curriculum: MBioS 513, Phil 530, P/T 501, P/T 502, P/T 505*, P/T 506, P/T 507*, P/T 555 (PhD only), P/T 597, V Ph 505* (stats). In addition, elective graded coursework (currently 3 credits for MS students; 12 credits for PhD students) from advanced courses in pharmacology, toxicology or related subjects are required. The student, in consultation with his/her advisor, selects elective course work that complements each student's research and career interests. Each student is required to write a thesis based upon original laboratory research. The research interests of the faculty span a broad spectrum including: animal models of disease (colitis, ulceration, hyperlipidemia, colorectal cancer, breast cancer, hepatitis); behavioral and neuropharmacology; cancer biology; cardiovascular pharmacology; drug metabolism; endocrinology; immunopharmacology; medicinal chemistry; molecular biology (including gene therapy, epitope tags and site-directed mutagenesis); molecular pharmacology; pharmacokinetics and drug delivery technology; reproductive biology; and signal transduction.

Our program is housed in Wegner Hall on the main campus in Pullman. Research methods being employed by the faculty include: amino acid analysis; animal pharmacokinetics; behavioral (anxiety and pain) testing; immunocytochemistry; cell culturing and sorting; cell transfections, including siRNA; DNA sequencing; flow cytometry; immunoblotting and immune precipitation; lipid analyses; mitochondrial DNA-PCR; mouse tumorigenesis testing; oligonucleotide and peptide synthesis; Phase I and Phase II in vitro metabolism; phospholipase assays radioligand binding assay; radioimmunoassay; and signal transduction analyses.

Laboratories of individual faculty members in the pharmacology and toxicology program are well equipped with: 2-D protein electrophoresis equipment; beta and gamma counters; BioRad Gel Doc imaging system (visible and UV); Cartesian and Korf stereotaxic headholders (custom-built for behavioral studies); cell electroporator; Cytofluor fluorescence machine; gas and high performance liquid chromatographs (HPLC); fluorescence and UV/visible microplate readers; flow cytometer; densitometer; Molecular Dynamics STORM system (fluorescence and UV imaging); PCR and real-time PCR instrumentation; triple-quad mass spectrometer and HPLC; Li-Cor infrared imaging system; and other instruments to perform their research projects. Wegner Hall is home to WSU's Health Sciences Library. Also located on campus is an Electron Microscopy Center, as well as facilities for NMR and imaging equipment. Graduate faculty have access to accredited animal care facilities.

Applications for admission to the program must include: Official GRE scores, official transcripts for all college level work, three letters of recommendation, and a letter discussing career goals and research interests. For students whose native language is not English, TOEFL scores above 600 (paper-based test) or 250 (computer-based TOEFL) are required. Applications and inquiries should be directed to: Admissions Committee, Pharmacology/Toxicology Graduate Program, WSU, PO Box 646534, Pullman, WA 99164-6534 or e-mail: phar tox@wsu.edu

Description of Courses

Pharmacology and Toxicology Courses

P/T

502 Faculty Research in Pharmacology/Toxicology 1 Prereq graduate standing. Introduction to faculty research for incoming graduate students. S, F grading.
505 Principles and Methods of Toxicology
3 Prereq MBiO S 513 or c/. 300-level organ/mammalian physiology or permission of instructor. Basic concepts in mammalian toxicology and the methodology currently employed for toxicological investigations. Cooperative course taught by WSU, open to UI students (FST 505).

506 Principles of Pharmacology
3 Prereq MBiO S 513 or c/. Mechanisms of drug action and factors that modify drug responses; drug design and drug development. Cooperative course taught by WSU, open to UI students (FST 506).

507 Principles of Therapeutics
3 Prereq 300-level organ/mammalian physiology; P/T 506. Organ systems pharmacology, including drug actions, effects, side effects, and interaction of medications used in therapeutics.

510 Advanced Pharmacokinetics/Toxicokinetics
3 Prereq P/T 506. Kinetics of drug absorption, distribution, elimination, and pharmacologic response. Cooperative course taught by WSU, open to UI students (FST 510).

512 Topics in Pharmacology
V 1-4 May be repeated for credit; cumulative maximum 12 hours. By interview only. Topics of current interest in pharmacology and closely related disciplines. Cooperative course taught by WSU, open to UI students (VS 512).

543 Scientific Writing
1 Prereq two semesters of graduate work in the biomedical sciences, with lab rotations. A highly personalized course designed to help graduate students develop writing skills for biomedical science careers.

555 General and Cellular Physiology
4 (3-3) Prereq cell physiology or genetics course. Same as V Ph 555.

556 Insecticides: Toxicology and Mode of Action
1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Same as Entom 556.

557 Herbicides: Toxicology and Mode of Action
1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Same as Entom 557.

558 Pesticide Topics
1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Same as Entom 558.

572 Fundamentals of Oncology
3 Prereq MBiO S 513. Thorough overview of cancer biology encompassing basic cellular and molecular mechanisms of carcinogenesis and tumor progression, treatment and prevention. Cooperative course taught by WSU, open to UI students (FST 572).

597 Pharmacology and Toxicology Seminar
1 May be repeated for credit; cumulative maximum 12 hours. Cooperative course taught by WSU, open to UI students (FST 597). S, F grading.

600 Special Projects or Independent Study
Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination
Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination
Variable credit. S, F grading.

Department of Philosophy

libarts.wsu.edu/philo

Bryan Hall 316
509-335-4249

Associate Professor and Department Chair, D. L. Shier; Directors, M. W. Myers, H. S. Silverstein; Associate Professors, J. K. Campbell, D. M. Holbrook; Assistant Professor, A. Bunch, W. Kahasenche, M. Stichter.

The Department of Philosophy offers courses in which students discuss fundamental intellectual questions and both classical and contemporary attempts to address them. What makes for a morally right act or a just society? What sorts of things can we really claim to know? What is mind, and what is its relation to matter? Are we really capable of free choice or is our every act determined by past events? These are the kinds of questions that are addressed by philosophers.

Philosophy students acquire knowledge of ethics, logic, political philosophy, philosophy of religion, epistemology, metaphysics, and other areas which provide excellent intellectual foundations for careers in law, government service, education, ministry, and many other fields.

The study of philosophy enables students to explore critically a variety of systems of beliefs and values, to identify and challenge the foundations of their own beliefs and values, and to develop sound habits of critical thinking and communication skills that are central to success in all professions.

We expect our undergraduate students to 1) develop the critical thinking skills necessary for evaluating intellectual material from any discipline; 2) learn basic methods of symbolic logic (propositional logic or higher); 3) learn standard research procedures and methods for philosophy; 4) develop their abilities to write and speak effectively about philosophy and other subjects; 5) come to understand theories, concepts, and issues of moral philosophy; and 6) gain both broad knowledge of philosophy and knowledge within specialized fields of philosophy.

The department offers programs of study leading to the Bachelor of Arts in Philosophy (in either the Traditional Option or the Pre-Law Option) and the Master of Arts in Philosophy.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

Schedules of Studies

PHILOSOPHY - PRE-LAW OPTION

(120 HOURS)

First Year

First Term

Hours

Arts & Humanities [H,G] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math Proficiency [N] (GER) 3
Phil 260 3

Second Term

Hours

Communication Proficiency [C,W] (GER) 3
GenEd 111 [A] (GER) 3
Phil 201 3
Science Elective (GER) 4
Social Sciences [S,K] (GER) 3

Second Year

First Term

Hours

Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
Biological Sciences [B] (GER) 4
Foreign Language, if necessary, or Elective 4
Phil Elective 3
Elective 1

Second Term

Hours

Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
Foreign Language, if necessary, or Elective 4
Phil Elective 3
Physical Sciences [P] (GER) 4
Complete Writing Portfolio

Third Year

First Term

Hours

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Intercultural Studies [I,G,K] (GER) 3
Phil 360, 365, or 470 3
Pol S 300 3
Elective 3

Second Term

Hours

Engl 301 [W] or Phil 200 [W] (GER) 3
Phil 460, 470, or 472 3
Tier III Course [T] (GER) 3
Elective 6

Fourth Year

First Term

Hours

Phil 495 [M] 3
Phil Electives 6
Electives 6

Second Term

Hours

Phil Electives 3
Electives 9

Footnotes

1 One Phil elective must be [M] if two have not been taken.

PHILOSOPHY - TRADITIONAL OPTION

(120 HOURS)

First Year

First Term

Hours

Arts & Humanities [H,G] (GER) 3
Engl 101 [W] (GER) 3
Philosophy

The minor in philosophy consists of 16 hours of course work, at least 9 of which must be in 300-400-level courses taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Courses are chosen by the student, in consultation with the department, but will normally include Phil 101 and will always include Phil 201.

Description of Courses

Philosophy Courses

Phil
101 [H] Introduction to Philosophy 3 Nature and place of philosophy in human thought; problems and achievements.

198 [H] Philosophy Honors 3 Open only to students in the Honors College.

200 [W] Writing and Reasoning 3 Application of critical thinking skills to essay writing.

201 [H] Elementary Logic 3 Analysis and evaluation of deductive and non-deductive arguments.

205 Debating Social/Political/Philosophical Issues 2 (0-4) Introduction to and practice in debate techniques applied to current issues.

207 [H] Philosophy of Religion 3 Critical inquiry into the existence and nature of God; the problem of evil; the relation of faith and reason; immortality and miracles. Cooperative course taught jointly by WSU and UI (Phil 207).

210 [H] Philosophy in Film 3 The use of film as "philosophical text," discussing philosophical theories and debates presented in films, both old and new. Cooperative course taught by WSU, open to UI students (Phil 210).

320 [H] History of Ancient and Medieval Philosophy 3 Prereq 3 hours in Phil. Pre-Socratics, Plato, Aristotle; post-Aristotelian philosophy to the Renaissance. Cooperative course taught jointly by WSU and UI (Phil 320).

321 [H] History of Modern Philosophy 3 Prereq 3 hours in Phil. Renaissance, 17th and 18th century philosophers. Cooperative course taught jointly by WSU and UI (Phil 321).

322 [H] Nineteenth-century Philosophy 3 Prereq 3 hours in Phil. The Continental, post-Kantian tradition, with emphasis on thinkers such as Hegel, Schopenhauer, Kierkegaard and Nietzsche. Cooperative course taught by WSU, open to UI students (Phil 322).

325 [M] History of Analytic Philosophy 3 Prereq 3 hours Phil. Selected major philosophers, issues, and trends in analytic philosophy.

350 [H] Philosophy of Science 3 Purpose and logical structure of science; human implications. Cooperative course taught jointly by WSU and UI (Phil 351).

360 [H] Business Ethics 3 The principles of ethics as applied to specific problems in business faced by individuals and corporate institutions.

365 [H] Biomedical Ethics 3 Ethical problems in medicine and biological research.

370 [H] Environmental Ethics 3 The place of humans in nature and human obligations to nature, if any.

390 Topics in Philosophy 3 May be repeated for credit; cumulative maximum 6 hours.

401 Advanced Logic 3 Prereq Phil 201. First-order predicate logic plus some metametheory, applications and/or extensions. Credit not granted for both Phil 401 and 501. Cooperative course taught by WSU, open to UI students (Phil 401).

406 Philosophy and Race 3 Prereq 3 hours in Phil or CES 201. Same as CES 406. Cooperative course taught by WSU, open to UI students (Phil 406).

407 Seminar in Philosophy of Religion 3 May be repeated for credit; cumulative maximum 6 hours. Senior seminar for majors in religious studies. Advanced topic-driven seminar. Critical analysis of traditional and contemporary religions and religious phenomena. Credit not granted for both Phil 407 and 507. Cooperative course taught by WSU, open to UI students (Phil 407).

413 [T] Mind of God and the Book of Nature: Science and Religion 3 Prereq 3 hours Phil; completion of science General Education Requirements; completion of one Tier I and two Tier II courses. Methodological comparison; cutting edge issues in science as they impact theism; guest lectures from professors in the natural sciences.

420 Contemporary Continental Philosophy 3 Prereq 3 hours Phil. Selected movements, figures, and issues in recent continental philosophy. Cooperative course taught by WSU, open to UI students (Phil 420).
421 Kant 3 Prereq 3 hours of philosophy. Exploration of Kant's philosophy and the philosophies heavily influenced by Kant. Cooperative course taught by WSU; open to UI students (Phil 421).

425 [T,D] Philosophy and Feminism 3 Prereq 3 hours Phil or W St 200. Feminist philosophy as critique of Western philosophical tradition and as alternate framework for thought. Cooperative course taught jointly by WSU and UI (Phil 425).

431 [T] Aesthetics and Philosophy of Art 3 Prereq 3 hours Phil; completion of one Tier I and three Tier II courses. Philosophical exploration of aesthetics experience and any or all of the arts; emphasis on value considerations and comparisons of differing media. Cooperative course taught jointly by WSU and UI (Phil 431).

435 [T] East/West Philosophy of Architecture 3 Prereq completion of one Tier I and three Tier II courses. East/West philosophies and their impact on understanding of nature and architecture.

442 [M] Analytic Philosophy of Mind 3 Prereq 3 hours Phil. Theories of mind, self, mental acts, psychological states and artificial intelligence. Cooperative course taught jointly by WSU and UI (Phil 442).

443 Philosophy of Language 3 Prereq 3 hours Phil. Investigation of philosophical issues concerning meaning, reference, truth, the nature of language, and the relation between language and thought. Cooperative course taught jointly by WSU and UI (Phil 443).

446 Metaphysics 3 Prereq 3 hours Phil. Issues and theories concerning free will and determinism, the nature of truth, the existence of God, space, time and identity. Cooperative course taught jointly by WSU and UI (Phil 446).

447 Theory of Knowledge 3 Prereq 3 hours Phil. Problems and theories concerning skepticism, the nature and scope of knowledge, a priori knowledge, and induction. Cooperative course taught jointly by WSU and UI (Phil 447).

451 Philosophy of Biology 3 Prereq 3 hours Phil. 3 hours Biol. Conceptual problems and value questions in defining biology as a human endeavor and in defining its scope and its aims. Cooperative course taught by UI (Phil 451), open to WSU students.

460 [M] Ethical Theory 3 Prereq 3 hours in Phil. Problems of ethical theory as treated by historical and contemporary philosophers. Cooperative course taught jointly by WSU and UI (Phil 460).

462 [M] Women and Ethics 3 Prereq Phil 101 or W St 462. Same as W St 462. Cooperative course taught by WSU, open to UI students (Phil 462).

470 Philosophy of Law 3 Prereq 3 hours in Phil. Selected topics pertaining to moral and philosophical evaluation of law. Cooperative course taught jointly by WSU and UI (Phil 470).

472 [M] Social and Political Philosophy 3 Prereq 3 hours Phil or Pol S. Problems of normative social and political theories; historical and contemporary philosophers. Cooperative course taught jointly by WSU and UI (Phil 472).

490 INPC Seminar 2 Prereq 6 hours philosophy or by permission. Focused study of the topic of the annual Inland Northwest Philosophy Conference with guest instruction by scholars from the conference.

495 [M] Senior Seminar 3 Prereq senior in philosophy or 24 hours in philosophy. Mastery of the philosophical essay; topics may vary.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Advanced Logic 3 Prereq Phil 201. Graduate-level counterpart of Phil 401; additional requirements. Credit not granted for both Phil 401 and 501. Cooperative course taught by WSU, open to UI students (Phil 501).

504 Special Topics in Philosophy 3 May be repeated for credit; cumulative maximum 12 hours. Prereq graduate standing. Intensive study of a special topic not otherwise covered in depth in the curriculum. Cooperative course taught jointly by WSU and UI (Phil 504).

507 Seminar in Philosophy of Religion 3 May be repeated for credit; cumulative maximum 6 hours. Graduate-level counterpart of Phil 407; additional requirements. Credit not granted for both Phil 407 and 507.

510 Seminar in the History of Philosophy 3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Systematic exploration of the central works of an individual philosopher or philosophical movement. Cooperative course taught jointly by WSU and UI (Phil 510).

520 Seminar in Ethical Theory 3 Prereq graduate standing. The major issues, views, and figures of ethical theory from ancient Greece to the present. Cooperative course taught by WSU, open to UI students (Phil 520).

522 Seminar in Epistemology 3 Prereq graduate standing. Classical problems, questions, and theories involving the concept of knowledge. Cooperative course taught jointly by WSU and UI (Phil 522).

530 Bioethics 2 Prereq graduate standing. Professional ethics for scientists; ethical implications of new technologies; obligations to human and non-human research subjects. Cooperative course taught by WSU, open to UI students (Phil 530).

532 Seminar in Business Ethics 3 Prereq graduate standing. The major issues in business ethics, both domestic and international, from general principles to specific cases. Cooperative course taught by WSU, open to UI students (Phil 532).

535 Advanced Biomedical Ethics 3 Current ethical issues in medical practice, medical research and public policy relating to health issues. Cooperative course taught by WSU, open to UI students (Phil 535).

551 Philosophy of Biology 3 Graduate-level counterpart of Phil 451; additional requirements. Cooperative course taught jointly by WSU and UI (Phil 517).

552 Environmental Philosophy 3 Prereq graduate standing. Philosophical examination of various ethical, metaphysical and legal issues concerning humans, nature and the environment. Cooperative course taught by UI (Phil 552), open to WSU students.

556 Religion and Environment 3 Concepts of the sacred, the human and nature and their interrelationships with religious traditions and how they relate to ecology and environmental ethics. Cooperative course taught by UI (Phil 556), open to WSU students.

571 Ecological Jurisprudence 3 Prereq graduate standing. Nature of law at the intersection of nature and culture including influences from the philosophy of pragmatism. Cooperative course taught by UI (Phil 571), open to WSU students.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit. S, F grading.

Physical Education Activity

PEB 101 509-335-1309

Description of Courses

Physical Education Activity (PEACT) Courses

Physical Education Activity courses are open to all students. PEACT courses numbered 100 through 174 are for beginners. Those numbered 177 and above are for intermediate or advanced students. PEACT course credit is granted on the basis of 1 credit for two one-hour classes per week. PEACT courses may not be repeated for credit, with the exception of PEACT 200 Special Topics (1 credit hour, repeatable to a maximum of 4 hours). Only 8 hours of PEACT credit may be applied toward graduation credit.

Courses are graded A, S, or F, except as noted.

PEACT

101 Beginning Conditioning S, F grading.

102 Beginning Conditioning ROTC

106 Self Defense
Physical Science Courses

Description of Courses

Physical Science Courses

Ph S

298 [P] Physical Science Honors 4 (3-3) Concepts from cosmology, astronomy, physics, chemistry, and biochemistry; how matter evolved from the Big Bang to intelligent life forms.

430 Methods of Teaching Science 3 (2-3) Prereq admission to secondary teacher prep; 36 hours science. Same as Biol 430.

Department of Physics and Astronomy

www.physics.wsu.edu
Webster 1245
509-335-9532

Professor and Department Chair, S. L. Tomsovich; Professors, G. S. Collins, Regents Professor J. T. Dickinson, Regents Professor Y. M. Gupta, M. G. Kaziy, K. G. Lynn, P. L. Marston, D. Miller, L. S. Wang; Associate Professors, D. Blume, S. Bose, L. S. Drexheine, M. D. McCluskey, G. Worthey; Assistant Professors, P. Engels, Yi Gua Clinical Associate Professor, F. Gittes; Instructors, M. Allen, N. Cerruti.

Physics is the study of nature at its most fundamental level. It is the science upon whose principles all other sciences and technologies are based. A major in physics is ideal preparation for further study in physics or for advanced study in biophysics, medicine, astrophysics, geophysics, chemical physics, engineering, meteorology, and computer science. These same areas also offer careers for the physics major.

Courses offered by the physics department introduce the student to the major physical theories: mechanics, thermodynamics and statistical physics, electricity and magnetism, and quantum physics. Additional undergraduate courses cover optics, atomic physics, nuclear physics, solid state physics, and astrophysics. Students test the theories in laboratories and learn experimental techniques needed to work with modern apparatus such as computers, high-vacuum equipment, lasers, and electronic and optical devices.

Active research programs supported by federal grants and contracts are pursued in the following fields: acoustics (scattering, nonlinear processes, and levitation); astrophysics (planetary, stellar, and galactic structure and evolution); astrophysical generation of gravitational waves, gravitational wave data analysis, cosmology; optical properties of semiconductors; biophysics; cluster physics; optical physics (femtosecond laser spectroscopy, scattering from doped polymers, nonlinear optics, quantum electronics, Fourier spectroscopy, diffraction catastrophes); physics education (use of microcomputers in teaching and labs); nuclear solid state physics (Mössbauer effect, perturbed angular correlation, positron annihilation studies of defects in solids); shock wave and high pressure physics (chemical and structural response of condensed materials to high dynamic pressures, time-resolved optical spectroscopy, shock and detonation wave propagation, chemical reactions, dynamic mechanical failure); surface and chemical physics (synchrotron SAFS, diamond films, molecular interactions with surfaces, reactive etching of surfaces, photoelectric and thermal emission microscopy); theory (quantum chaos, nonlinear dynamics, mesoscopic systems, phase transitions and critical phenomena, quantum liquids, and gases, atomic and molecular physics, classical and quantum gravity, black hole thermodynamics, and low-temperature physics). These research groups offer graduate students the opportunity to pursue original investigations required for advanced degrees. Undergraduate physics majors are encouraged to participate in research through the special-project course (Phys 499) and through part-time jobs that are sometimes available.

The Department of Physics offers courses in the degrees of Bachelor of Science in Physics, Master of Science in Physics, and Doctor of Philosophy (PhD). Astronomy courses at both the undergraduate and graduate levels are administered by the department. In instruction in astronomy is enhanced by the use of a 12-inch refractor at the Jewett Observatory and a Spitz planetarium. Opportunities are available for students to collaborate with faculty to do research projects.

The Department of Physics is a major participant in the Materials Science Program and offers courses and research opportunities leading to advanced degrees in this interdisciplinary program. The Department of Physics in collaboration with the School of Electrical Engineering and Computer Science offers a specialized Master of Science in Physics in the multidisciplinary area of Optoelectronics.

The Department of Physics has developed a variety of options for students seeking a major in physics. For most of these options, the program in the first two years is the same. Differences in these will appear as footnotes. The program is appropriate for students who have had a good experience with calculus and wish to start physics in their second semester at WSU. Students who have placed into Math 172 can accelerate the math sequence. Upon consultation with the departmental advisor, modifications can be made in the list of required courses to fit the needs of individual students.

We expect our undergraduate students to attain the following educational objectives: (1) to achieve a broad knowledge of mathematics, physical sciences, and their practical applications, as well as specialized knowledge relevant to occupations and careers; (2) to be able to apply that knowledge to solve new problems; (3) to be able to design and conduct experiments and interpret results of experiments. To use instruments and software effectively to carry out experiments or solve problems; (4) to communicate
effectively in visual or oral presentations and in writing; (5) to work effectively in teams; and (6) to work independently and gain the capability for independent, life-long learning.

Certification Requirements
A student may certify as a physics major after completing 30 credits (preferably including Phys 201 and Math 171) with a cumulative GPA of 2.0 or better. A research experience is required of all students as a 499 project; however, to gain valuable work experience outside the university, students are strongly encouraged to participate in an internship or research experience in industry or a government lab outside of WSU. The summer after the junior year is the most appropriate time for this experience. All students are required to submit an undergraduate thesis to a committee of two physics faculty members in the senior year. Phys 490 will give credit for this effort. The student must earn a C (2.0) or better in each of the required physics courses.

Transfer Students
Transfer students receive credit for equivalent courses taken elsewhere, but must meet the requirements for graduation listed.

Preparation for Graduate Study
Undergraduate students contemplating graduate work in physics should consider enrolling in Phys 443, 521, 571, and additional math courses.

Schedules of Studies
Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

PHYSICS - FIRST AND SECOND YEAR REQUIREMENTS (120 HOURS)
A student may certify as a physics major after completing 30 credits (preferably including Phys 201 and Math 171) with a cumulative GPA of 2.0 or better. A research experience is required of all students as a 499 project; however, to gain valuable work experience outside the university, students are strongly encouraged to participate in an internship or research experience in industry or a government lab outside of WSU. The summer after the junior year is the most appropriate time for this experience. All students are required to submit an undergraduate thesis to a committee of two physics faculty members in the senior year. Phys 490 will give credit for this effort. The student must earn a C (2.0) or better grade in each of the required physics courses.

The first year requirements are common to all physics degree programs:

First Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 105 [P] (GER) or 115</td>
<td>4</td>
</tr>
<tr>
<td>Degree program course, if necessary&lt;sup&gt;1&lt;/sup&gt;</td>
<td>3 or 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 106 [P] (GER) or 116</td>
<td>4</td>
</tr>
<tr>
<td>Degree program course, if necessary&lt;sup&gt;1&lt;/sup&gt;</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Math 172</td>
<td>4</td>
</tr>
<tr>
<td>Math 201 or 205</td>
<td>4 or 5</td>
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Second Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Degree program course, if necessary&lt;sup&gt;2&lt;/sup&gt;</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Math 220</td>
<td>2</td>
</tr>
<tr>
<td>Math 273</td>
<td>2</td>
</tr>
<tr>
<td>Phys 202 or 206</td>
<td>4 or 5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cpt S 121</td>
<td>4</td>
</tr>
<tr>
<td>Degree program course, if necessary&lt;sup&gt;2&lt;/sup&gt;</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Math 315</td>
<td>3</td>
</tr>
<tr>
<td>Math 303</td>
<td>3</td>
</tr>
<tr>
<td>Phys 330</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete Writing Portfolio

Footnotes
<sup>1</sup> Environmental: ES/RP 101; Physics Education: Psych 105 [S] (GER) ComSt 102 [C] (GER); Computational Physics: Cpt S 121, 122.
<sup>2</sup> Additional hours may be taken for credit; Math Electives (6 hours) selected from Math 340, 360, 375, 401, 402, 415, 420, 440, 441, 443, 448; Phys 304, 320, 341, 342, 410, 412, 415 [M], 443, 450, 490 [M], 450, 463, 465, 490 [M], 499; any 400-level Math or Phys course.

- Astrophysics Option

This program yields a Bachelor of Science in Physics degree with a minor in mathematics and astronomy.

- Biophysics Option

This program yields a Bachelor of Science in Physics degree with a minor in mathematics and possibly biochemistry.

- Computational Physics Option

This program yields a Bachelor of Science in Physics degree with a minor in mathematics and possibly in computer science.

- Continuum Physics and Acoustics Option

This program yields a Bachelor of Science in Physics degree with a minor in mathematics.

- Physics and Astronomy Option

This program yields a Bachelor of Science in Physics degree with a minor in mathematics.

- Astrophysics Option

This program yields a Bachelor of Science in Physics degree with a minor in mathematics and astronomy.

- Biophysics Option

This program yields a Bachelor of Science in Physics degree with a minor in mathematics and possibly biochemistry.

- Computational Physics Option

This program yields a Bachelor of Science in Physics degree with a minor in mathematics and possibly in computer science.

- Continuum Physics and Acoustics Option

This program yields a Bachelor of Science in Physics degree with a minor in mathematics.

- Astrophysics Option

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- Biophysics Option

This program yields a Bachelor of Science in Physics degree with a minor in mathematics and possibly biochemistry.

- Computational Physics Option

This program yields a Bachelor of Science in Physics degree with a minor in mathematics and possibly in computer science.

- Continuum Physics and Acoustics Option

This program yields a Bachelor of Science in Physics degree with a minor in mathematics.
- Environmental Physics Option

This program yields a Bachelor of Science in Physics degree with a minor in mathematics and environmental science.

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) (6 hours); Intercultural [I,G,K] (GER); Social Sciences [S,K] (GER); Engl 402 [WM]; Tier III Humanities or Social Sciences Course (GER); Biol 372; Chem 345; ES/EP 335, 404, 444, 445, 499 (One hour of 499 in an appropriate department or physics required. Additional hours may be taken for credit); Math Electives (6 hours) selected from Math 340, 360, 375, 401, 415, 420, 440, 441, 443, 448; Phys 304, 320, 341, 342, 410, 415 [M], 450, 463, 465, 490 [M].

- Instrumentation Option

This program yields a Bachelor of Science in Physics degree with a minor in mathematics.

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) (6 hours); Intercultural [I,G,K] (GER); Social Sciences [S,K] (GER); Engl 402 [WM]; Tier III Humanities or Social Sciences Course (GER); Biol 372; Chem 345; ES/EP 335, 404, 444, 445, 499 (One hour of 499 in an appropriate department or physics required. Additional hours may be taken for credit); Math Electives (6 hours) selected from Math 340, 360, 375, 401, 415, 420, 440, 441, 443, 448; Phys 304, 320, 341, 342, 410, 415 [M], 450, 463, 465, 490 [M].

- Materials Physics Option

This program yields a Bachelor of Science in Physics degree with a minor in mathematics and possibly in material science.

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) (6 hours); Intercultural [I,G,K] (GER); Social Sciences [S,K] (GER); Engl 402 [WM]; Tier III Humanities or Social Sciences Course (GER); E E 261, 262, 311, 352; Math Electives (6 hours) selected from Math 340, 360, 375, 401, 402, 415, 420, 440, 441, 443, 448; Phys 304, 320, 341, 342, 410, 412, 415 [M], 443, 450, 463, 465, 490 [M], 499.

- Mathematical Physics Option

This program yields a Bachelor of Science in Physics degree with a minor in mathematics.

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) (6 hours); Intercultural [I,G,K] (GER); Social Sciences [S,K] (GER); Engl 402 [WM]; Tier III Humanities or Social Sciences Course (GER); Chem 331, 333; Math Electives (6 hours) selected from Math 340, 360, 375, 401, 402, 415, 420, 440, 441, 443, 448; MSE 201, 312, 321, 413, 499 (One hour of 499 in an appropriate department or physics required. Additional hours may be taken for credit); MSE Electives (6 hours, 400-level); Phys 304, 320, 341, 342, 410, 415 [M], 450, 463, 465, 490 [M].

- Nanotechnology Option

This program yields a Bachelor of Science in Physics degree with a minor in Chemistry.

Arts and Humanities [H,G] or Social Science [S,K] (GER) (6 hours); Intercultural [I,G,K] (GER); Social Sciences [S,K] (GER); English 402 [WM]; Tier III Humanities or Social Sciences Course (GER); Chem 331, 332, 333, 345, 346, 347; Math Electives (6 hours) selected from Math 340, 360, 375, 401, 402, 415, 420, 440, 441, 443, 448; MSE 201, 321; Physics 304, 320, 341, 342, 410, 415 [M], 450, 463, 466, 490 [M], 499.

- Optics and Electronics Option

This program yields a Bachelor of Science in Physics degree with a minor in mathematics and possibly in electrical engineering.

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) (6 hours); Intercultural [I,G,K] (GER); Social Sciences [S,K] (GER); Engl 402 [WM]; Tier III Humanities or Social Sciences Course (GER); E E 234, 261, 262, 351, 431, 496, 499 (One hour of 499 in an appropriate department or physics required. Additional hours may be taken for credit); Math Electives (6 hours) selected from Math 340, 360, 375, 401, 402, 415, 420, 440, 441, 443, 448; Phys 304, 320, 341, 342, 410, 412, 415 [M], 443, 450, 463, 490, 499.

- Physics Education Option

This program yields a Bachelor of Science in Physics degree with a minor in mathematics and a primary endorsement to teach physics and a supporting endorsement to teach mathematics.

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) (6 hours); Engl 402 [WM]; Intercultural [I,G,K] (GER); Social Sciences [S,K] (GER); Tier III Humanities or Social Sciences Course (GER); EdPsy 496; Math 303, 360; Ph S 430; Phys 304, 320, 341, 342, 410, 415 [M], 450, 463, 465, 490 [M], 499 (Four hours, includes observing Phys 101 and 102. Additional hours may be taken for credit); T & L 317, 415 (16 hours), 464, 465, 466, 467, 469.

- Physics Option

This program yields a Bachelor of Science in Physics degree with a minor in mathematics and a primary endorsement to teach physics.

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) (6 hours); Intercultural [I,G,K] (GER); Social Sciences [S,K] (GER); Engl 402 [WM]; Tier III Humanities or Social Sciences Course (GER); E E 234, 261, 262, 351, 431, 496, 499 (One hour of 499 in an appropriate department or physics required. Additional hours may be taken for credit); Math Electives (6 hours) selected from Math 340, 360, 375, 401, 402, 415, 420, 440, 441, 443, 448; Phys 304, 320, 341, 342, 410, 412, 415 [M], 443, 450, 463, 465, 490 [M], 499.

- Astronomy Courses

**Astr 135 [P] Astronomy 4 (3-2) Overview of the solar system, stars, galaxies, cosmology, and the history of astronomy. Includes a lab component with occasional evening meetings. Credit not granted for both Astr 135 and 150.**

**Astr 138 [P] Planets and Planetary Systems 3 Formation and dynamics of planetary systems; major planets: interiors, surfaces, atmospheres; minor planets: moons, asteroids, comets; science missions; extrasolar planets.**

**Astr 150 [Q] Science and the Universe 3 Basic structure and history of science and science reasoning with emphasis on astronomy, observational practice, and data analysis. Credit not granted for both Astr 135 and 150.**

**Astr 345 [P] Principles of Astronomy 3 Prereq Phys 102 or 202. Planets, the sun, stars, and galaxies; current topics in astrophysics and planetary research.**

**Astr 390 [P] The Night Sky 1 (0-3) Prereq science GER course. Star names, magnitude scales, constellation identification, astronomical coordinates, solar, lunar and planetary motions, practical astronomy. Some outdoor evening time required.**

**Astronomy and Astrophysics I 3 Prereq Math 172, Math 202. Planets, solar systems, and stars.**

**Astronomy and Astrophysics II 3 Prereq Math 172, Math 202. Exotic objects, galaxies, and cosmology.**

**Astr 450 [T] Life in the Universe 3 Prereq completion of one Tier I and three Tier II courses and mathematics proficiency. The natural history of life on earth and prospects for life elsewhere; includes chemistry, biology, geology, physics and astronomy.**

**Astr 490 [M] Undergraduate Thesis 1 Same as Phys 490.**

**Astr 499 Special Problems 1-4 May be repeated for credit. S, F grading.**

**Graduate Seminar 1 Same as Phys 501. S, F grading.**

**Topics in Modern Astrophysics 3 May be repeated for credit; cumulative maximum 9 hours.**

**Advanced Topics 3 Same as Phys 581.**

**Seminar in Astronomy/Astrophysics 3 Prereq graduate standing. Same as Phys 595. S, F grading.**

**Special Projects or Independent Study 3 Variable credit. S, F grading.**
## Physics Courses

### Phys

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Prerequisites</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td><strong>[P]</strong> General Physics I (3-3)</td>
<td>Prereq Math 107 with a grade of C or better or placement into Math 140 or higher. Algebra/trigonometry-based physics; topics in mechanics, wave phenomena, temperature, and heat; oriented toward non-physical science majors.</td>
<td></td>
</tr>
<tr>
<td>102</td>
<td><strong>[P]</strong> General Physics II (3-3)</td>
<td>Prereq Phys 101 with a grade of C or better; Math 107 with a C or better or placement into Math 140 or higher. Algebra/trigonometry-based physics; topics in electricity, magnetism, optical phenomena, relativity, and quantum theory; oriented toward non-physical science majors.</td>
<td></td>
</tr>
<tr>
<td>103</td>
<td><strong>Problem Solving for Physics 101</strong> (1)</td>
<td>Prereq c// enrollment in Phys 101. Small class environment for students who desire focused attention on problem solving skills as applied to Phys 101 materials. S, F grading.</td>
<td></td>
</tr>
<tr>
<td>104</td>
<td><strong>Problem Solving for Physics 102</strong> (1)</td>
<td>Prereq c// enrollment in Phys 102. Small class environment for students who desire focused attention on problem solving skills as applied to Phys 102 materials. S, F grading.</td>
<td></td>
</tr>
<tr>
<td>150</td>
<td>[Q] Physics and Your World 3 (2-2) Survey</td>
<td></td>
<td>Study of physics as found in everyday phenomena; including many hands-on activities and home experiments. Field trips required.</td>
</tr>
<tr>
<td>188</td>
<td><strong>Freshman Seminar I</strong> (1)</td>
<td>Faculty will present current research interests and opportunities in physics; questions and discussion. Taught annually each fall. S, F grading.</td>
<td></td>
</tr>
<tr>
<td>201</td>
<td><strong>[P]</strong> Physics for Scientists and Engineers I (4-3)</td>
<td>Prereq Math 171 with a grade of C or better or placement into Math 172 or higher. Calculus-based physics; topics in motion and dynamics of particles and rigid bodies, vibrations, wave phenomena, and the laws of thermodynamics.</td>
<td></td>
</tr>
<tr>
<td>202</td>
<td><strong>[P]</strong> Physics for Scientists and Engineers II (4-3)</td>
<td>Prereq Math 172 with a grade of C or better or placement into Math 273 or higher; Phys 201 with a grade of C or better. Calculus-based physics, topics in electricity, magnetism, electromagnetics, D/C and A/C circuits, optics, reflection, refrraction, interference, diffraction, polarization.</td>
<td></td>
</tr>
<tr>
<td>203</td>
<td><strong>Problem Solving for Physics 201</strong> (1)</td>
<td>Prereq c// enrollment in Phys 201. Small class environment for students who desire focused attention on problem solving skills as applied to Phys 201 materials. S, F grading.</td>
<td></td>
</tr>
<tr>
<td>205</td>
<td><strong>[P]</strong> Physics for Scientists and Engineers I - Honors (3-4)</td>
<td>Prereq Math 171. Calculus-based physics, honors section; mechanics, sound, and thermodynamics.</td>
<td></td>
</tr>
<tr>
<td>206</td>
<td><strong>[P]</strong> Physics for Scientists and Engineers II - Honors (3-4)</td>
<td>Prereq Math 172; Phys 201 or 205. Calculus-based physics, honors section; electricity, magnetism, light, topics in modern physics.</td>
<td></td>
</tr>
<tr>
<td>303</td>
<td><strong>Modern Physics I</strong> (3)</td>
<td>Prereq Math 220 or c//; Phys 202. Quantum and relativity theories with applications to atomic, solid state, nuclear and elementary particle physics.</td>
<td></td>
</tr>
<tr>
<td>304</td>
<td><strong>Modern Physics II</strong> (3)</td>
<td>Prereq Phys 303. Continuation of Phys 303.</td>
<td></td>
</tr>
<tr>
<td>320</td>
<td><strong>Mechanics</strong> (3)</td>
<td>Prereq Math 315 or c//; Phys 102 or 202. Particle motion in one-, two-, and three-dimensions; motions of systems of particles; rigid body motion; Lagrange's equations.</td>
<td></td>
</tr>
<tr>
<td>330</td>
<td><strong>Thermal Physics</strong> (3)</td>
<td>Prereq Math 273; Phys 202. Thermal behavior of systems; energy and entropy; equations of state; changes of phase; elements of continuum and statistical approaches.</td>
<td></td>
</tr>
<tr>
<td>341</td>
<td><strong>Electricity and Magnetism I</strong> (3)</td>
<td>Prereq Math 315 or c//; Phys 202. Electrostatic fields, magnetic fields, dielectric and magnetic media.</td>
<td></td>
</tr>
<tr>
<td>345</td>
<td><strong>[P]</strong> Principles of Astronomy (3)</td>
<td>Prereq Phys 102 or 202. Same as Astr 345.</td>
<td></td>
</tr>
<tr>
<td>380</td>
<td><strong>[P]</strong> Physics and Society (3)</td>
<td>Prereq Math 273; Phys 201. Algebra/trigonometry-based physics; topics in electricity, magnetism, optical phenomena, relativity, and quantum theory; oriented toward non-physical science majors.</td>
<td></td>
</tr>
<tr>
<td>410</td>
<td><strong>Electronics</strong> (3)</td>
<td>Prereq Phys 102 or 202. Laboratory construction and investigation of electronic circuits employed in research instruments.</td>
<td></td>
</tr>
<tr>
<td>412</td>
<td><strong>Modern Optics Laboratory</strong> (3)</td>
<td>Prereq Phys 443 or c//. Fundamentals of experimental modern optics and applications in science and engineering.</td>
<td></td>
</tr>
<tr>
<td>415</td>
<td><strong>[M]</strong> Quantum Physics Laboratory (3)</td>
<td>Prereq Phys 443 or c//. Fundamentals of experimental modern optics and applications in science and engineering.</td>
<td></td>
</tr>
<tr>
<td>435</td>
<td><strong>Astronomy and Astrophysics</strong> (3)</td>
<td>Prereq Phys 172; Phys 202. Same as Astr 435.</td>
<td></td>
</tr>
<tr>
<td>436</td>
<td><strong>Astronomy and Astrophysics II</strong> (3)</td>
<td>Prereq Phys 202. Same as Astr 436.</td>
<td></td>
</tr>
<tr>
<td>443</td>
<td><strong>Optics</strong> (3)</td>
<td>Prereq Phys 341 or c//. Polarization, interference, coherence, and diffraction phenomena of the electromagnetic spectrum; optics of solids; laser resonators; gaussian beams; ABCD matrices.</td>
<td></td>
</tr>
<tr>
<td>450</td>
<td><strong>Introduction to Quantum Mechanics</strong> (3)</td>
<td>Prereq Math 315; Phys 303. Introduction to quantum theory with applications to atomic physics. Cooperative course taught jointly by WSU and UI (Phys 450).</td>
<td></td>
</tr>
<tr>
<td>461</td>
<td><strong>Introduction to Atomic and Molecular Physics</strong> (3)</td>
<td>Prereq Phys 304. Introduction to atomic and molecular physics; spectroscopy.</td>
<td></td>
</tr>
<tr>
<td>463</td>
<td><strong>Introduction to Solid State and Materials Physics</strong> (3)</td>
<td>Prereq Phys 304. Introduction to the physics of solids; crystal structures, lattice vibrations, and electron theory. Cooperative course taught jointly by WSU and UI (Phys 463).</td>
<td></td>
</tr>
<tr>
<td>466</td>
<td><strong>Biological Physics</strong> (3)</td>
<td>Prereq Math 172; Phys 202. Fundamental physics and thermodynamics of the cell; mechanics of biomolecular machines. Credit not granted for both Phys 466 and 566.</td>
<td></td>
</tr>
<tr>
<td>490</td>
<td><strong>[M]</strong> Undergraduate Thesis** (1)</td>
<td>Preliminary thesis draft of a laboratory or library research experience, oral presentation, and final draft.</td>
<td></td>
</tr>
<tr>
<td>501</td>
<td><strong>Graduate Seminar</strong> I (1)</td>
<td>Introduction to graduate and interdisciplinary research. S, F grading.</td>
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<tr>
<td>514</td>
<td><strong>Optoelectronics Lab I</strong> V 1 (0-3) to 3 (0-9)</td>
<td>Prereq Math 106. May be repeated for credit; maximum 3 hours. Prereq graduate standing. Experiments with optical systems; Imaging, interference, coherence, information storage/processing, gas and solid state lasers, optical fibers, and communications systems.</td>
<td></td>
</tr>
<tr>
<td>515</td>
<td><strong>Optoelectronics Lab II</strong> V 1 (0-3) to 3 (0-9)</td>
<td>Prereq Math 106. May be repeated for credit; maximum 3 hours. Prereq graduate standing. Experiments in optical physics, physical properties of light, laser physics, waveguides, quantum confined semiconductor structures and ultrafast dynamics and nonlinear optics.</td>
<td></td>
</tr>
<tr>
<td>521</td>
<td><strong>Classical Mechanics I</strong> (3)</td>
<td>Prereq Math 320; 571 or c//. Laws of motion as developed by Newton, d'Alembert, Lagrange, and Hamilton; dynamics of particles and rigid bodies. Cooperative course taught jointly by WSU and UI (Phys 521).</td>
<td></td>
</tr>
<tr>
<td>533</td>
<td><strong>Thermal and Statistical Physics I</strong> (3)</td>
<td>Prereq Math 440; Phys 330. Thermodynamic laws and potentials, kinetic theory, hydrodynamics and transport coefficients; introduction to statistical mechanics, ensembles, partition functions. Cooperative course taught jointly by WSU and UI (Phys 533).</td>
<td></td>
</tr>
<tr>
<td>534</td>
<td><strong>Thermal and Statistical Physics II</strong> (3)</td>
<td>Prereq Math 531, 535; or Phys 533, 551. Phase transitions and critical phenomena, Ginzburg-Landau theory, Bose-Einstein condensation, superfluids, Fermi systems, low-temperature expansions. Cooperative course taught jointly by WSU and UI (Phys 531).</td>
<td></td>
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</tbody>
</table>
541 Electromagnetic Theory 3 Prereq Phys 342, 571 or c/. Special relativity and the classical electromagnetic field; emission, propagation, and absorption of electromagnetic waves. Cooperative course taught jointly by WSU and UI (Phys 541).

542 Electrodynamics 3 Prereq Phys 541. Interaction of matter and electromagnetic radiation; classical and quantum electrodynamics. Cooperative course taught jointly by WSU and UI (Phys 542).

545 Nonlinear Optics 3 Prereq Phys 534, 542, 551. Nonlinear wave propagation theory applied to several nonlinear-optical phenomena; experimental techniques that probe a material’s nonlinearity.

546 Quantum Electronics 3 Prereq Phys 541, 551 or c/. The physics of lasers and of coherent optical radiation generation and propagation.

550 Quantum Theory I 3 Prereq Math 440, 441; Phys 450. Introduction to quantum theory; physical and mathematical foundations; application to atomic systems. Cooperative course taught jointly by WSU and UI (Phys 551).

551 Quantum Theory II 3 Prereq Phys 550, 571. Symmetry and invariance; angular momentum theory; approximation methods. Cooperative course taught jointly by WSU and UI (Phys 552).

552 Quantum Theory III 3 Prereq Phys 551. Scattering theory; relativistic wave mechanics; quantum field theory. Cooperative course taught jointly by WSU and UI (Phys 553).


563 Physics of the Solid State 3 Prereq Phys 534, 551. Lattice vibrations and defects; ionic and electronic conductivities; band theory; magnetic properties; luminescence. Cooperative course taught jointly by WSU and UI (Phys 563).

566 Biological Physics 3 Graduate-level counterpart of Phys 466; additional requirements. Credit not granted for both Phys 466 and 566.

571 Methods of Theoretical Physics 3 Prereq Math 440, 441. Mathematical methods for theoretical physics; linear algebra, tensor analysis, complex variables, differential equations, integral equations, variational calculus, and group theory. Cooperative course taught jointly by WSU and UI (Phys 571).

579 Advanced Solid State Physics 3 Prereq Phys 534, 542, 552 or c/, 563, 571. Quantum theory of solids; Green’s functions, correlation functions and other field-theoretic methods; magnetism, superconductivity and transport properties.

581 Advanced Topics 3 May be repeated for credit; cumulative maximum 12 hours. Topics of current interest in advanced physics. Cooperative course taught jointly by WSU and UI (Phys 581).

590 Seminar 1 May be repeated for credit. S, F grading.

592 Wave Propagation Seminar 2 May be repeated for credit; cumulative maximum 4 hours. Prereq Math 440, 441. Waves in the continuum; elastic, plastic, and hydrodynamic waves; shock waves. S, F grading.

595 Seminar in Astronomy/Astrophysics 1 May be repeated for credit; cumulative maximum 4 hours. Prereq graduate standing. Current topics in theoretical and observational aspects of modern astrophysics. S, F grading.

598 Teaching Undergraduate Physics Laboratories 1 May be repeated for credit; cumulative maximum 4 hours. Principles and practices of teaching, planning and management of undergraduate physics laboratories; choice and care of equipment. S, F grading.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master’s Special Problems, Directed Study and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

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Department of Plant Pathology
plantpath.wsu.edu
Johnson Hall 345
509-335-9541


Plant pathology is the study of plant diseases, including causes, economic consequences, spread, and control. Opportunities for graduates in plant pathology include positions in research and development, teaching, extension, and sales. Plant pathologists are employed throughout the world by industries, governments, educational institutions, and private foundations. A limited undergraduate program is designed to provide a broad background in the biological, physical, and agricultural sciences. However, most opportunities in plant pathology require advanced degrees. Students who intend to terminate university training with a baccalaureate degree are encouraged to enroll in the Integrated Pest Management curriculum.

The courses offered in this department are designed both to train students expecting to make plant pathology or mycology their professional field of specialization and to provide supplementary training for students in other biological and agricultural fields, particularly botany, crop science, genetics, horticulture, forestry, and entomology. Students who expect to become professional plant pathologists are advised to include in their undergraduate studies fundamental courses in bacteriology, botany, chemistry, genetics, physics, and zoology.

A professional career in plant pathology requires graduate training, and the four-year course outlined under the schedule of studies is basic for such later specialization. Students often enter advanced work in plant pathology following a major in biology, botany, crop science, genetics, horticulture, molecular biology, or similar areas as well as in plant pathology. Specialized areas of advanced study include bacteriology, mycology, nematology, virology, epidemiology, molecular biology of host-parasite relationships, ecology of disease development, biochemistry of pathogenicity, disease resistance, chemical control, and biological control. Research is conducted on diseases of grain crops, forage crops, forest trees, fruit, vegetables, ornamentals, and turf.

The department offers courses of study leading to the degrees of Bachelor of Science in Agricultural and Food Systems, Master of Science in Plant Pathology, and Doctor of Philosophy in Plant Pathology.

Preparation for Graduate Study
As preparation for work toward an advanced degree a student should have completed a bachelor’s degree; at least one year each of general inorganic chemistry, botany, zoology, physics; one semester each of systematic botany, plant physiology, bacteriology, general plant pathology, entomology, precalculus, organic chemistry, genetics, and report writing or advanced composition.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

PLANT PATHOLOGY REQUIREMENTS

(130 HOURS)

Students should consult their advisors for appropriate sequencing of courses and in selecting electives consistent with vocational and professional objectives.

First Year

Biol 106 [B] (GER)
Chem 105 [P] (GER) 4  
Engl 101 [W] (GER) 3  
GenEd 110 [A] (GER) 3  
Math 107 4  
Second Term
Biol 107 [B] (GER) 4  
Chem 106 [P] (GER) 4  
GenEd 111 [A] (GER) 3  
Math Proficiency [N] (GER) 3  
MBioS 101 [B] (GER) 4  
Second Year
First Term
Biol 120 [B] (GER) 4  
Chem 345 4  
Phys 101 [P] (GER) 3  
SoilS 201 3  
Second Term
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3  
Biol 372 4  
Communication Proficiency [C,W] (GER) 3  
CropS 101 3  
Phys 102 [P] (GER) 4  
Complete Writing Portfolio  
Third Year
First Term
Biol 320 4  
CropS 201 4  
Hort 201 4  
Social Sciences [S,K] (GER) 3  
Second Term
Ag Ec 201 3  
Arts & Humanities [H,G] (GER) 3  
Biol 332 4  
CropS 305 3  
Engl 351 3  
Fourth Year
First Term
Entom 340 3  
Intercultural Studies [L,G,K] (GER) 3  
MBioS 301 4  
PI P 429 3  
Ag Elective 3  
Second Term
Tier III Course [T] (GER) 3  
Ag Electives 12  

The following substitutions may be allowed with departmental approval: Chem 101/102 for Chem 105/106; Entom 343 for Entom 340; H D 205 for Engl 351; Math 171 for Math 107; Micro 201 for MBioS 101.

**Description of Courses**

**Plant Pathology Courses**

**PI P**

150 [FQ] Molds, Mildews, Mushrooms: The Fifth Kingdom 3 A mycocentric approach to natural and anthropological history including the diverse niches occupied by molds, mildews and mushrooms.

300 Diseases of Fruit Crops 2 Prereq Biol 120, Hort 310, or Hort 313. Comprehensive understanding of the diseases of fruit crops grown in the state of Washington.

351 Forest Pathology 2 (0-6) Prereq Biol 106. Parasitic and nonparasitic diseases of forest and shade trees; life histories of fungi as related to diseases.

403 Advance Cropping Systems 3 Prereq CropS 201; PI P 429 or c//; or graduate standing. Same as CropS 403. Credit not granted for both PI P 403 and 503.

421 General Mycology 4 (2-6) Rec Biol 106. The structure, life histories, classification, and economic importance of the fungi. Credit not granted for both PI P 421 and 521. Cooperative course taught by WSU, open to UI students (PlSc 421).

429 General Plant Pathology 3 (2-3) Rec Biol 107 or 120. Classification, symptoms, causes, epidemiology, and control of plant diseases. Credit not granted for both PI P 429 and 529.

490 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

503 Advance Cropping Systems 3 Prereq CropS 201; PI P 429 or c//; or graduate standing. Graduate-level counterpart of PI P 403; additional requirements. Credit not granted for both PI P 403 and 503.

511 Epidemiology and Management of Plant Diseases 3 Prereq PI P 429 or 529. Principles of plant disease epidemiology, control and ecology of pathogens. Cooperative course taught by WSU, open to UI students (PlSc 511).

513 Nematodes and Nematode Diseases of Plants 2 (1-3) Prereq PI P 429. Anatomy, identity, and diseases caused by nematodes; techniques and control.

514 Phytopathobiology 4 (3-3) Prereq MBioS 303, 305. Isolation and characterization of bacteria having a saprophytic, symbiotic or pathogenic association with plants, molecular structure, function, and genetics. Cooperative course taught by WSU, open UI students (PlSc 514).

515 Seminar 1 May be repeated for credit.

521 General Mycology 4 (2-6) Rec Biol 107 or 120. Graduate-level counterpart of PI P 421; additional requirements. Credit not granted for both PI P 421 and 521.

525 Field Plant Pathology and Mycology 1 (0-3) or 2 (0-6) May be repeated for credit; cumulative maximum 4 hours. Rec plant pathology and/or mycology course; by interview only. Field trips, forays, and demonstrations dealing with various aspects of plant pathology and mycology.

526 Advanced Fungal Biology 4 (2-4) Prereq PI P 421, 521 and graduate standing. Advanced topics in fungal biology, ecology, systematics, evolution and coevolution via discussions of literature and special laboratory projects. Cooperative course taught by WSU, open to UI students.

529 General Plant Pathology 3 (2-3) Rec Biol 107 or 120. Graduate-level counterpart of PI P 429; additional requirements. Credit not granted for both PI P 429 and 529.

534 Fungal Genetics 4 (3-3) Prereq MBioS 301. Classical and molecular approaches to genetic analyses in fungi.

535 Molecular Genetics of Plant and Pathogen Interactions 3 Prereq MBioS 301, 303. Genetic and molecular biological aspects of host-pathogen interactions. Cooperative course taught by WSU, open to UI students (PlSc 535).

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

**Department of Political Science**

[www.libarts.wsu.edu/polisci](http://www.libarts.wsu.edu/polisci)
Johnson Tower 801 509-335-2544


Courses in political science are offered in political institutions (presidency, congress, the courts, political parties, mass media), public policy formation and evaluation, public law, civil liberties, international relations (foreign policy, strategic policy, conflict resolution), comparative government (area studies, post-industrial societies, cross-national comparisons), political philosophy and methodology.

The department offers courses of study leading to the degrees of Bachelor of Arts in Political Science, Master of Arts in Political Science, and Doctor of Philosophy.

The department is the locus of the Criminal Justice Program, which offers courses of study leading to the Bachelor of Arts in Criminal Justice and the Master of Arts in Criminal Justice. For details, see the criminal justice section of this catalog.
The undergraduate programs in the Department of Political Science are designed to prepare students to be more thoughtful consumers and producers of information related to political phenomenon in the U.S. and in other nations. More specifically, the department's programs aim to: (1) develop the ability to think critically about social and political values; (2) produce graduates with an understanding of the importance of a global perspective on political issues; (3) understand the fundamental theories and frameworks currently used to explain a wide range of political behaviors; and (4) develop and cultivate the ability to write, read, and think critically and effectively.

**Prelaw Studies**

No specific major is required to be eligible for law school. The department's Prelaw Advising Center assists all students interested in law school regardless of their intended major.

Through its prelaw curriculum, the department offers a selection of courses designed to prepare students adequately for law school and eventual careers in law. This curriculum reflects recommendations of the Association of American Law Schools. Students choosing other departmental options are also eligible to attend law school if they meet admission requirements.

**Public Service**

Government is the nation's largest employer. Many public officials are political science graduates. The department advises students concerning training and career opportunities in federal, state, and local governments, the Foreign Service, and related occupations. Its extensive internship program places students in public agencies, political parties, and similar organizations. The department also encourages and advises students on study abroad as part of preparing for careers in international affairs.

**Division of Governmental Studies and Services**

The department's Division of Governmental Studies and Services (DGSS) is an instrument for extending beyond the classroom and into public service the resources represented in the department's teaching and research personnel. Functions of the division include performing research and issuing publications relating to government and public affairs; providing training and consulting services to public agencies and private organizations concerned with public affairs; and administering internship programs to provide practical experience in government. DGSS maintains a collection of specialized government publications and related materials and, in general, acts as a link between teaching and the conduct of public affairs.

**Preparation for Graduate Study**

Students with some undergraduate course work in political science while majoring in such subjects as economics, business administration, history, criminal justice or sociology may readily pursue graduate study in political science. Undergraduates at other institutions or in other departments at this institution who contemplate graduate work in this department should acquire some training in political science. For graduate study and its graduate degree programs, the department clusters its courses in three subfields: American institutions and processes; foreign systems and world politics; and administration, justice, and applied policy studies.

**Schedules of Studies**

**Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.**

**POLITICAL SCIENCE - GENERAL OPTION**

**(120 HOURS)**

Students wishing to enroll in Pol S 499 must have at least junior standing and consent of the instructor; no more than 3 hours of 499 or 3 hours of 497 may be counted toward the departmental requirements.

**First Year**

**First Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Pol S 101 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
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**Second Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Communication Proficiency [C,W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
<td>3</td>
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<tr>
<td>Pol S 102 [S] (GER)</td>
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**Second Year**

**First Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Foreign Language, if necessary, or Elective</td>
<td>3 or 4</td>
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<tr>
<td>Math Proficiency [N] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Pol S 103 [S] (GER)</td>
<td>3</td>
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<tr>
<td>Science Elective (GER)</td>
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**Second Term**

<table>
<thead>
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<th>Course</th>
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</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Foreign Language, if necessary, or Elective</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Pol S Electives</td>
<td>6</td>
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<tr>
<td>Complete Writing Portfolio</td>
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**Third Year**

**First Term**

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<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>300-400-level Arts &amp; Humanities or Social Sciences Elective</td>
<td>3</td>
</tr>
<tr>
<td>300-400-level Pol S Elective [M]</td>
<td>4</td>
</tr>
<tr>
<td>Physical [P] Sciences (GER)</td>
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<tr>
<td>Pol S Electives</td>
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**Second Term**

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<th>Course</th>
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<tr>
<td>300-400-level Arts &amp; Humanities or Social Sciences Elective</td>
<td>3</td>
</tr>
<tr>
<td>300-400-level Pol S Elective [M]</td>
<td>3</td>
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**Fourth Year**

**First Term**

<table>
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<td>300-400-level Arts &amp; Humanities or Social Sciences Elective</td>
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<tr>
<td>300-400-level Pol S Elective</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
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**Second Term**

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<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>300-400-level Arts &amp; Humanities or Social Sciences Elective</td>
<td>3</td>
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<tr>
<td>300-400-level Pol S Elective</td>
<td>3</td>
</tr>
<tr>
<td>Tier III Course [T] (GER)</td>
<td>3</td>
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</table>

**POLITICAL SCIENCE - GLOBAL POLITICS OPTION**

**(120 HOURS)**

33 hours in Pol S are required, at least 15 of which must be earned at WSU. Consult advisor on study abroad in junior year.

**First Year**

**First Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math Proficiency [N] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Pol S 101 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Science Elective [Q,B,P] (GER)</td>
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**Second Term**

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<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Pol S 102 [S] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Second Year**

**First Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Proficiency [C,W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Physical Science [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Pol S 103 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Pol S Comparative Elective or Minor Field Elective</td>
<td>3</td>
</tr>
<tr>
<td>Social Science [S,K] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Second Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
<td>6</td>
</tr>
<tr>
<td>Pol S Elective</td>
<td>3</td>
</tr>
<tr>
<td>Pol S IR Elective</td>
<td>3</td>
</tr>
<tr>
<td>Minor Field Elective</td>
<td>3</td>
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<tr>
<td>Complete Writing Portfolio</td>
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</table>

**Third Year**

**First Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Field Elective or Foreign Language</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Pol S [M]</td>
<td>3</td>
</tr>
<tr>
<td>Pol S 333 or 438</td>
<td>3</td>
</tr>
<tr>
<td>Pol S Comparative Elective</td>
<td>3</td>
</tr>
<tr>
<td>Pol S IR Elective</td>
<td>3</td>
</tr>
</tbody>
</table>
Second Term Hours
Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
Pol S [M] 3
Pol S Comparative Elective1 3
Pol S IR Elective1 3
Minor Field Elective or Foreign Language2 3 or 4

Fourth Year
First Term Hours
Minor Field Elective 3
Political Science Comparative Elective (if necessary)3 3
Tier III Course [T] (GER) 3
Electives 6
Second Term Hours
Minor Field Elective 3
Electives 6

Minors
Political Science
18 semester hours of political science coursework is required for the minor, half of which must be in 300-400-level courses. The courses may not be taken pass, fail. Students must successfully complete Pol S 101, 102, and 103. At least 12 semester hours of political science must be earned at Washington State University. Three hours of Pol S 497 or 499 may be applied to the minor. A minimum GPA of 2.0 in the political science courses is required.

Description of Courses
Political Science Courses
Pol S
101 [S] American National Government 3 Introduction to American politics exploring the constitution, political institutions and actors, the policy making process, and various public policies.
102 [S] Introduction to Comparative Politics 3 Nature of the state; fundamental problems of government and politics; ideological and institutional comparison of democracies and dictatorships.
103 [S] International Politics 3 Creation and operation of national, international, and supranational communities; major world problems since 1945.
198 [S] Political Science Honors 3 Open only to students in the Honors College.
206 State and Local Government 3 Institutions, processes, and problems, with special reference to the state of Washington.
275 Special Topics: Study Abroad 4 V 1-15 May be repeated for credit. S, F grading.
276 Special Topics: Study Abroad 4 V 1-15 May be repeated for credit. S, F grading.

277 Special Topics: Study Abroad 4 V 1-15 May be repeated for credit. S, F grading.
278 Special Topics: Study Abroad 4 V 1-15 May be repeated for credit. S, F grading.
300 The American Constitution 3 Prereq Pol S 101. Constitutional principles as established by the Supreme Court and related political developments.
301 Political Simulations 3 Prereq Pol S 101. Preparation for and participation in political simulations.
305 [S] Gender and Politics 3 Role of gender in political behavior; voting and political participation; women as subjects and objects of political systems.
314 National States and Global Challenges 3 Comprehensive introduction to the processes of the economic and political integration of the European Union.
316 American Public Policy 3 Institutions, processes, and substantive issues of American public policy and policy formation.
317 Media and Politics 3 Relationship between the media and American political institutions and the public.
324 [I] Black Politics 3 Political culture, roles, and strategies of Black people in the United States; impact upon public policy.
333 [S] Development of Marxist Thought 3 Marxist theory from the original writing of Marx and Engels to contemporary developments.
340 Introduction to Public Administration 3 Prereq Pol S 101. Basic theories of administrative organization, relationships, and behavior.
375 Chicana/o and Latina/o Politics 3 Same as CES 389.
381 Crime and Justice in the Movies 3 (2-2) Prereq Crm J 101 or Pol S 101. Same as Crm J 381.
400 Political Science Issues 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Pol S 101. Current issues in political science. Cooperative course taught by WSU, open to UI students (PolSc 404).
402 Civil Liberties 3 Prereq Pol S 101. Origin and development of civil liberties; responsibility of the branches of government and the people for their maintenance.
405 [M] Comparative Criminal Justice Systems 3 Same as Crm J 405.
410 History of American Indian Sovereignty and Federal Indian Law 3 Same as Hist 410.
413 Latin American Governments 3 Institutions and political processes of selected Latin American republics.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pol S 101</td>
<td>Voting and Elections 3</td>
<td>Analysis of voting behavior and elections; turnover, influences on voter choice, congressional and presidential elections, campaign finance, and polling.</td>
<td></td>
</tr>
<tr>
<td>Pol S 102</td>
<td>Political Parties and Interest Groups 3</td>
<td>Roles, characteristics, and theories of political parties; organization, behavior, and impact of interest groups.</td>
<td></td>
</tr>
<tr>
<td>Pol S 103</td>
<td>US National Security Policy 3</td>
<td>Substantive and theoretical research on issues relevant to formulation and requirements of post-Cold War, US national security and defense policy.</td>
<td></td>
</tr>
<tr>
<td>Pol S 104</td>
<td>United States Foreign Relations 3</td>
<td>Ends and means in foreign policy; organization, management, control, and current policy issues.</td>
<td></td>
</tr>
<tr>
<td>Pol S 105</td>
<td>Issues in Political Psychology 3</td>
<td>Prereq Pol S 101 or Psych 105; completion of one Tier I and three Tier II courses. Introduction to the ways in which psychological factors influence political phenomena.</td>
<td></td>
</tr>
<tr>
<td>Pol S 106</td>
<td>Special Topics in American Foreign and Defense Policy 3</td>
<td>May be repeated for credit; cumulative maximum 6 hours. Prereq Pol S 102 or 103. Current issues in foreign policy.</td>
<td></td>
</tr>
<tr>
<td>Pol S 107</td>
<td>The Politics of Natural Resource and Environmental Policy 3</td>
<td>Prereq completion of one Tier I and three Tier II courses. Issues and problems of natural resource and environmental policy.</td>
<td></td>
</tr>
<tr>
<td>Pol S 108</td>
<td>Comparative Public Policy 3</td>
<td>Processes of public policy formation and outcomes in post-industrial democracies, and how to analyze it in a comparative perspective.</td>
<td></td>
</tr>
<tr>
<td>Pol S 109</td>
<td>Politics of Developing Nations 3</td>
<td>Issues and problems of political development and modernization common among developing nations. Cooperative course taught by WSU, open to UI students (PolS 501).</td>
<td></td>
</tr>
<tr>
<td>Pol S 111</td>
<td>Classical Political Thought 3</td>
<td>The development of political philosophy from the pre-Socratics to Machiavelli.</td>
<td></td>
</tr>
<tr>
<td>Pol S 112</td>
<td>Recent Political Thought 3</td>
<td>The development of political thought since Machiavelli.</td>
<td></td>
</tr>
<tr>
<td>Pol S 113</td>
<td>Leadership Skills for the Public Sector 3</td>
<td>Prereq Pol S 101 or 102; Psych 105 or Soc 101. Leadership, motivation, teambuilding, group dynamics, interpersonal and group conflict and job design for the public sector.</td>
<td></td>
</tr>
<tr>
<td>Pol S 114</td>
<td>Administrative Jurisprudence 3</td>
<td>Study of the origins, nature, and practice of justice and law in public administration.</td>
<td></td>
</tr>
<tr>
<td>Pol S 115</td>
<td>Public Personnel Administration 3</td>
<td>Development of American civil service systems and concepts; problems and techniques involved in selection and management of public employees. Cooperative course taught by WSU, open to UI students (PolSce 445).</td>
<td></td>
</tr>
<tr>
<td>Pol S 116</td>
<td>Public Budgeting 3</td>
<td>The government budget as an instrument of politics, planning and control; organizing for democratic accountability.</td>
<td></td>
</tr>
<tr>
<td>Pol S 117</td>
<td>Comparative Public Administration 3</td>
<td>Public administration systems in Europe, Japan, Socialist and developing countries; origins and development.</td>
<td></td>
</tr>
<tr>
<td>Pol S 118</td>
<td>Urban Politics and Policy 3</td>
<td>Urban political processes and policies; intergovernmental relationships; impact of urban reform.</td>
<td></td>
</tr>
<tr>
<td>Pol S 119</td>
<td>The Legislative Process 3</td>
<td>Role of legislatures in a democratic system; problems of representation; election and tenure of lawmakers; legislative organization and procedures.</td>
<td></td>
</tr>
<tr>
<td>Pol S 120</td>
<td>The Presidency 3</td>
<td>Organization and processes of executive institutions at the national level; uses and limits of executive power.</td>
<td></td>
</tr>
<tr>
<td>Pol S 121</td>
<td>European Politics 3</td>
<td>Government and politics of postindustrial societies, including West Europe and Japan.</td>
<td></td>
</tr>
<tr>
<td>Pol S 122</td>
<td>African Politics 3</td>
<td>Prereq completion of one Tier I and three Tier II courses. Same as CES 439.</td>
<td></td>
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<tr>
<td>Pol S 123</td>
<td>Mao to Deng: The People's Republic of China, 1949 - 1999 3</td>
<td>As Same as Hist 475.</td>
<td></td>
</tr>
<tr>
<td>Pol S 124</td>
<td>Revolutionary China: 1800 to Present 3</td>
<td>Same as Hist 476.</td>
<td></td>
</tr>
<tr>
<td>Pol S 125</td>
<td>Topics in Political Science V 1-3 May be repeated for credit; cumulative maximum 6 hours. Selected issues and topics in political science.</td>
<td></td>
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</tr>
<tr>
<td>Pol S 126</td>
<td>Political Science Internship V 1-12 May be repeated for credit; cumulative maximum 12 hours. Prereq Pol S 101. On/off campus internship in federal, state, or local government institutions; nonprofit or public organizations; written assignments and readings required.</td>
<td></td>
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<tr>
<td>Pol S 127</td>
<td>Cooperative Education Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Cooperative course taught by WSU, open to UI students (PolSc 501).</td>
<td></td>
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</tr>
<tr>
<td>Pol S 128</td>
<td>Special Problems V 1-4 May be repeated for credit.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pol S 129</td>
<td>The Scope of Political Science 3</td>
<td>Prereq 12 hours Pol S. Historical development and present status of the discipline; contemporary issues and future trends. Cooperative course taught by WSU, open to UI students (PolSc 530).</td>
<td></td>
</tr>
<tr>
<td>Pol S 130</td>
<td>Seminar in Normative Theory 3</td>
<td>Elements of normative theory developments; examination of bases of controversies and approaches in the modern literature using historical sources.</td>
<td></td>
</tr>
<tr>
<td>Pol S 131</td>
<td>Introduction to Political Science Research Methods 3</td>
<td>Prereq 12 hours Pol S; Soc 321. Social science research design topics, measurement, sampling, data sources, experimental and quasi-experimental designs, field and historical designs, content analytic designs.</td>
<td></td>
</tr>
<tr>
<td>Pol S 132</td>
<td>Quantitative Methods in Political Science and Criminal Justice 3</td>
<td>Prereq introductory statistics course. Applied statistical skills, enabling understanding of substantive political and social questions.</td>
<td></td>
</tr>
<tr>
<td>Pol S 133</td>
<td>Comparative Criminal Justice Systems 3</td>
<td>Same as Crm J 505.</td>
<td></td>
</tr>
<tr>
<td>Pol S 134</td>
<td>Seminar on American Institutions and Processes 3</td>
<td>Seminar required of all graduate students using this field as a major or a minor; it is a prerequisite of all other graduate seminars in the field.</td>
<td></td>
</tr>
<tr>
<td>Pol S 135</td>
<td>Seminar in American Political Thought 3</td>
<td>May be repeated for credit; cumulative maximum 6 hours. The genesis and development of political thought in the United States.</td>
<td></td>
</tr>
<tr>
<td>Pol S 136</td>
<td>Seminar in American Institutions 3</td>
<td>May be repeated for credit, cumulative maximum 6 hours. Origin, development, and contemporary issues in political organization and structure in the United States.</td>
<td></td>
</tr>
<tr>
<td>Pol S 137</td>
<td>Seminar in American Political Behavior 3</td>
<td>May be repeated for credit, cumulative maximum 6 hours. Theoretical approaches to, and empirical analysis of, mass political behavior in the US.</td>
<td></td>
</tr>
<tr>
<td>Pol S 138</td>
<td>Seminar in Public Policy 3</td>
<td>Examination of central questions in public policy including the nature of public policy, policy analysis, and government intervention in society.</td>
<td></td>
</tr>
<tr>
<td>Pol S 139</td>
<td>Seminar on Law, Courts, and Judicial Politics 3</td>
<td>Prereq graduate standing. Seminar on law, courts, and judicial politics.</td>
<td></td>
</tr>
<tr>
<td>Pol S 140</td>
<td>American Foreign Policy: Theories and Applications 3</td>
<td>Theories of international politics applied to American foreign policy. Cooperative course taught by WSU, open to UI students (PolSce 501).</td>
<td></td>
</tr>
<tr>
<td>Pol S 141</td>
<td>Seminar in International Security 3</td>
<td>International security and arms control politics, negotiations, agreements. Cooperative course taught by WSU; open to UI students (PolSc 561).</td>
<td></td>
</tr>
<tr>
<td>Pol S 142</td>
<td>Seminar in International Political Economy 3</td>
<td>Institutions, politics, and decision-making processes in managing international economic relations.</td>
<td></td>
</tr>
<tr>
<td>Pol S 143</td>
<td>Topics in Political Psychology 3</td>
<td>May be repeated for credit; cumulative maximum 6 hours. Psychological influences on political decision making, bargaining, conflict and conflict resolution options.</td>
<td></td>
</tr>
</tbody>
</table>
534 Seminar in Comparative Politics 3 May be repeated for credit; cumulative maximum 6 hours. Cooperative course taught jointly by WSU and UI (PolSc 595).

536 Special Topics in Comparative Politics 3 May be repeated for credit; cumulative maximum 6 hours. Advanced issues seminar in international and comparative politics.

537 Concepts and Methods in Comparative Politics 3 Selected concepts (state, political participation), and methods (cross-national analysis, case study approaches) in comparative politics.

538 International Development and Human Resources 3 Same as Anth 519.

539 The Political Science Profession 1 Methods, problems, and purposes of teaching, research, and vocation in political science. S, F grading.

540 Proseminar in Public Administration 3 Proseminar over viewing basic theories of administrative organization, relationships, and behavior.

541 Seminar in Research Evaluation 3 Same as Crm J 540.

542 Proseminar in Administration, Justice, and Applied Policy Studies 3 May be repeated for credit; cumulative maximum 12 hours. Prereq Pol S 340 or 445. Analytical perspectives and theoretical issues. Cooperative course taught jointly by WSU and UI (PolSc 592).

543 Topics in Public Administration and Policy 3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Examination of the literature on the politics of the American public policy process.

544 The Politics of Policy Process 3 American political process; policy making under the constraints of a democratic system; relationship to the (non) achievement of the public interest.

547 Seminar in Public Administration 3 Cooperative course taught by WSU, open to UI students (PolSc 501).

597 Graduate Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. Prereq graduate student. On/off campus internship in federal, state, or local government institutions; nonprofit or public organizations; written assignments and readings required. S, F grading.

599 Research Practicum V 1-3 May be repeated for credit; cumulative maximum 6 hours. S, F grading.

600 Special Projects or Independent Study Variable credit S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

Predental Curriculum

www.wsu.edu/~premed
Troy 305
509-335-4549

Professor and Coordinator, P. Verrell; Advisor, K. L. Brothers.

Becoming a dentist requires a program of graduate study in a dental school as well as undergraduate preparation. It is possible, but rare, for students to be admitted to some programs after the third year of college. The majority of students who go on to dental school complete a baccalaureate degree. No particular major is required, but almost all dental schools require specific undergraduate coursework and submission of scores from the Dental Aptitude Test (DAT), ordinarily taken in the summer following the student's third college year. A total of 21 credits of elective courses in humanities and social sciences, plus one year of coursework in each of the following areas, will meet the requirements of almost all institutions and also give a good preparation for the DAT.

1. English composition (Engl 101 and an additional [W] course or Engl 198/199)
2. General chemistry (Chem 105 and 106 or Chem 115 and 116)
3. Organic chemistry (Chem 345, 346, and one additional credit of organic chemistry)
4. Physics (Phys 101 and 102 or Phys 201 and 202)
5. Introductory biology (Biol 106 and 107)

In addition, institutions require Microbiology (MBioS 305 and 306), Biochemistry (MBioS 303), and/or Introductory Psychology (Psych 105).

Admission to a school of dentistry is based on satisfactory completion of the entrance requirements of that school, attainment of satisfactory scholastic record, satisfactory scores on the Dental Admission Test (DAT), the possession of personal qualifications necessary for the study of dentistry, and a single composite letter written by the coordinator.

Additional information can be obtained from P. Verrell, Professor and Coordinator, Predental Curriculum, Washington State University, 305 Troy Hall, Pullman, WA 99164-4432.

Prelaw Curriculum

libarts.wsu.edu/prelaw

Students interested in legal education may prepare for admission to law school from any major in any college at the University. The American Bar Association recommends completing a baccalaureate degree before entering law school, attaining as rich an undergraduate education as possible, and developing skills in reading, writing, critical thinking, oral communication, research, and task management. Admission to law school is based in most cases on a student’s Law School Admissions Test (LSAT) score, grade point average, personal statement, letters of recommendation, quality of the institution where undergraduate work is completed, and difficulty and range of course work.

The ABA recommends completing a major, but double majors or minors have no effect on admission. Pre-law students are advised to pursue majors in a discipline that interests them: students are more likely to excel in majors they enjoy, and the process of exploring one subject in greater depth will provide valuable preparation for study of the law. No particular major is recommended and there are no minimum requirements with regard to course work, but the American Bar Association has identified knowledge of certain subjects as important groundwork for law school: history, especially American history; political thought and theory and the American political system; ethical theory and theories of justice; economics; basic math and finance; human behavior and social interaction; diverse cultures both within and outside the United States; international and global issues.

For best results students should work closely with their major advisors. Several departments at the University offer pre-law curricula: Communication (226 Murrow Hall), History (301 Wilson Hall), Philosophy (316 Bryan Hall), Political Science (801 Johnson Tower), and Sociology (204 Wilson Hall). Additional information can be obtained from Professor J. Mitchell Pickerill (Washington State University, 824 Johnson Tower, Pullman, WA 99164-4880).

Premedical Curriculum

www.wsu.edu/~premed
Troy 305
509-335-4549

Professor and Coordinator, P. Verrell; Advisor, K. L. Brothers.

Becoming a medical doctor requires a program of graduate study in medical school as well as undergraduate preparative coursework. It is unusual for students to be admitted to medical school without a baccalaureate degree. No particular major is required, but almost all medical schools require specific undergraduate courses and the submission of scores from the Medical College Admission Test (MCAT). The MCAT is typically taken during the late spring or early summer of the student’s third college year. A total of 21 credits of elective courses in humanities and social sciences, plus one year of coursework in each of the following areas, will meet the requirements of almost all institutions and also give a good preparation for the MCAT.

1. English composition (Engl 101 and an additional [W] course or Engl 198/199)
2. General chemistry (Chem 105 and 106 or Chem 115 and 116)
3. Organic chemistry (Chem 345, 346, and one additional credit of organic chemistry)
4. Physics (Phys 101 and 102 or Phys 201 and 202)
5. Introductory biology (Biol 106 and 107)

In addition, institutions require Microbiology (MBioS 305 and 306), Biochemistry (MBioS 303), and/or Introductory Psychology (Psych 105).

Admission to a school of dentistry is based on satisfactory completion of the entrance requirements of that school, attainment of satisfactory scholastic record, satisfactory scores on the Dental Admission Test (DAT), the possession of personal qualifications necessary for the study of dentistry, and a single composite letter written by the coordinator.

Additional information can be obtained from P. Verrell, Professor and Coordinator, Predental Curriculum, Washington State University, 305 Troy Hall, Pullman, WA 99164-4432.

Prelaw Curriculum

libarts.wsu.edu/prelaw

Students interested in legal education may prepare for admission to law school from any major in any college at the University. The American Bar Association recommends completing a baccalaureate degree before entering law school, attaining as rich an undergraduate education as possible, and developing skills in reading, writing, critical thinking, oral communication, research, and task management. Admission to law school is based in most cases on a student’s Law School Admissions Test (LSAT) score, grade point average, personal statement, letters of recommendation, quality of the institution where undergraduate work is completed, and difficulty and range of course work.

The ABA recommends completing a major, but double majors or minors have no effect on admission. Pre-law students are advised to pursue majors in a discipline that interests them: students are more likely to excel in majors they enjoy, and the process of exploring one subject in greater depth will provide valuable preparation for study of the law. No particular major is recommended and there are no minimum requirements with regard to course work, but the American Bar Association has identified knowledge of certain subjects as important groundwork for law school: history, especially American history; political thought and theory and the American political system; ethical theory and theories of justice; economics; basic math and finance; human behavior and social interaction; diverse cultures both within and outside the United States; international and global issues.

For best results students should work closely with their major advisors. Several departments at the University offer pre-law curricula: Communication (226 Murrow Hall), History (301 Wilson Hall), Philosophy (316 Bryan Hall), Political Science (801 Johnson Tower), and Sociology (204 Wilson Hall). Additional information can be obtained from Professor J. Mitchell Pickerill (Washington State University, 824 Johnson Tower, Pullman, WA 99164-4880).
Acceptance of a student by a medical school is contingent on the satisfactory completion of at least the minimum entrance requirements of that school, attainment of a superior scholastic record, good to excellent scores on the MCAT, and possession of personal qualifications appropriate to success in the medical profession. Most schools require applicants to appear for a personal interview. In addition, letters of recommendation from several college teachers or a single composite letter written by the coordinator must strongly support the applicant. The latter is preferable.

Many medical schools welcome applications from students who have majors, or who have taken considerable work, in such diverse areas as humanities, mathematics, psychology, sociology, physics, chemistry, biochemistry, and engineering. Adequate latitude exists in the medical schools’ requirements so that the advisor usually is able to suggest a schedule of studies to meet the needs of the individual student. Medical schools also expect a good selection of non-science courses on the student’s transcript.

Additional information can be obtained from P. Verrell, Professor and Coordinator, Premedical Curriculum, Washington State University, 305 Troy Hall, Pullman, WA 99164-4432.

Preveterinary Curriculum

Students interested in veterinary medicine may prepare for admission from any major in the University as long as they meet the minimum requirements for admission. The requirements for admission are listed in this catalog under the College of Veterinary Medicine. Admission to the veterinary program is highly competitive so students are encouraged to choose their major carefully. While there is no baccalaureate degree in preveterinary medicine offered, many departments have programs that allow students to prepare for admission to veterinary school and earn a baccalaureate degree simultaneously. See the individual departments for specific plans of study. A minimum of three years of college or completion of a baccalaureate degree is strongly recommended.

Department of Psychology

www.wsu.edu/psychology
Johnson Tower 233
509-335-2631


The bachelor's degree program provides for either a major or a minor in psychology. The program for majors is designed for those who wish to study psychology as part of a liberal education; for those who plan to use their training in related vocations such as the professions, governmental organizations, business and industry, and psychological services; and for those who are preparing for graduate work in psychology. Course offerings are open to students in other departments who need a background in those aspects of psychology that are related to their respective fields. Also, it is possible to combine a major in psychology with the certificate programs in abnormal child psychology, and helping skills.

The department offers courses of study leading to the degrees of Bachelor of Arts in Psychology, Bachelor of Science in Psychology, Master of Science in Psychology, and Doctor of Philosophy.

Excellent facilities are available for instruction and research in psychology. There are specially designed facilities for research in learning, memory, sensory processes, perception, animal behavior, physiological psychology, social interaction, and behavior modification. Departmental facilities also include the Psychology Clinic, which is a training clinic, and the Student Psychophysiology Lab. In addition, cooperative arrangements with other units of the university and with outside agencies and institutions make it possible for students to gain first-hand experience in research and professional work. The university maintains a comprehensive library of books and journals in psychology and related fields.

Graduate Program

The graduate program leads to advanced degrees for qualified students who plan careers as psychologists. The course of study for the Doctor of Philosophy degree may be directed toward either a specialization in clinical or experimental psychology. The graduate training program in clinical psychology at Washington State University is accredited by the American Psychological Association.

Preparation for Graduate Study

Students who contemplate work leading to advanced degrees are urged to confer as early as possible with a psychology faculty mentor. Graduate programs require a solid background in mathematics, natural sciences, physics, philosophy, and social sciences as well as appropriate preparation in psychology itself.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

PSYCHOLOGY - BACHELOR OF ARTS (120 HOURS)

The Bachelor of Arts in Psychology requires a minimum of 30 credit hours in Psych, at least 15 hours of which must be in 300-400-level courses. The student must take at least 10 credit hours of psychology in residence at WSU and must maintain at least a C average in Psych courses. Students must have two years of one foreign language in high school or take one year in college of a modern foreign language before graduation. Beyond certain minimum requirements there is flexibility in the degree program, in accordance with the needs of the individual student. A student may certify as a BA major after completion of 24 semester hours and cumulative GPA of 2.0 or better.

For the BA degree in Psychology, the four learning goals are: (1) Students will understand basic scientific methodology; (2) Students will be able to describe societal influences on individual behavior, and they will display an understanding of the cultural relativism inherent in defining what is normal and abnormal behavior; (3) Students will be able to critically evaluate psychological material published in popular media sources; (4) Students will demonstrate proficiency in the written communication of psychological concepts.

First Year

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>First Term</td>
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<tr>
<td>Biol 101 [B] and 105 [B] or</td>
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<tr>
<td>Biol 102 [B] or higher (GER)</td>
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<tr>
<td>Psych 105 [S] (GER) or 198</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>Intercultural Studies I, G, K (GER)</td>
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<tr>
<td>Second Term</td>
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<tr>
<td>Arts &amp; Humanities H, G (GER)</td>
<td>3</td>
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<tr>
<td>Communication Proficiency C, W (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Social Sciences S, K (GER)</td>
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<tr>
<td>Stat or Math 212</td>
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Second Year

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<th>Term</th>
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<td>First Term</td>
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<tr>
<td>Arts &amp; Humanities H, G or</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences S, K (GER)</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Physical Sciences P (GER)</td>
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<tr>
<td>Track Psych Elective</td>
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<tr>
<td>Elective</td>
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<tr>
<td>Second Term</td>
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<tr>
<td>Arts &amp; Humanities H, G, Intercultural Studies I, G, K, or Social Sciences S, K (GER)</td>
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</tr>
<tr>
<td>Biological [B] or Physical [P] Sciences (GER)</td>
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<td>Psych 310</td>
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<tr>
<td>Elective</td>
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<td>Complete Writing Portfolio</td>
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Third Year

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<th>Term</th>
<th>Hours</th>
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<tr>
<td>First Term</td>
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<tr>
<td>300-400 level Track Psych Elective [M]</td>
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<tr>
<td>Psych Elective</td>
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<tr>
<td>300-400 level Electives</td>
<td>7</td>
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<tr>
<td>Electives</td>
<td>2</td>
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<tr>
<td>Second Term</td>
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<tr>
<td>Psych 316 [M]</td>
<td>3</td>
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<tr>
<td>Track Psych Elective</td>
<td>3</td>
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<tr>
<td>300-400 level Electives</td>
<td>9</td>
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</tbody>
</table>
Fourth Year
First Term Hours
Tier III Humanities or Social Science [T] (GER) 3
Track Psych Elective1 3
300-400 level Electives 6
Elective 3
Second Term Hours
300-400 level Psych Electives 6
Electives 9

Footnotes

PSYCHOLOGY - BACHELOR OF SCIENCE (120 HOURS)
The Bachelor of Science in Psychology requires a minimum of 30 credit hours in Psych, at least 15 hours of which must be in 300-400-level courses. The student must take at least 10 credit hours of psychology in residence at WSU and must maintain at least a C average in Psych courses. Students must have two years of one foreign language in high school or take one year in college of a modern foreign language before graduation. Beyond certain minimum requirements there is flexibility in the degree program, in accordance with the needs of the individual student. A student may certify as a BS major after completion of 30 semester hours, Psych 311 with a C- or better, and cumulative GPA of 2.5 or better.

For the BS degree in Psychology, the four learning goals are: (1) Students will understand basic research design and analysis; (2) Students will be able to describe societal influences on individual behavior, and they will display an understanding of the cultural relativism inherent in defining what is normal and abnormal behavior; (3) Students will be able to critically evaluate scientific studies; (4) Students will demonstrate proficiency in the written communication of psychological concepts.

First Year
First Term Hours
Biol 101 [B] and 105 [B], or Biol 102 [B], or higher (GER) 4
Engl 101 [W] (GER) 3
Intercultural Studies [I, G, K] (GER) 3
Psych 105 [S] (GER) or Psych 198 3
Second Term Hours
Arts & Humanities [H, G] (GER) 3
Communication Proficiency [C, W] (GER) 3
GenEd 110 [A] (GER) 3
Math Proficiency [N] (GER) 3
Social Sciences [S, K] (GER) 3

Second Year
First Term Hours
Arts & Humanities [H, G] or Social Sciences [S, K] (GER) 3
GenEd 111 [A] (GER) 3
Physical Sciences [P] (GER) 4
Psych 311 4

Second Term Hours
Arts & Humanities [H, G], Intercultural Studies [I, G, K], or Social Sciences [S, K] (GER) 6
Biological [B] or Physical [P] Sciences (GER)4 4
Psych 312 [M] 4
Complete Writing Portfolio

Third Year
First Term Hours
Group I Psych Elective1 3
Psych Elective 3
Tier III Course [T] (GER) 3
300-400-level Non-Psych Electives 7
Second Term Hours
Group I Psych Elective2 3
Group II Psych Elective2 3
300-400-level Non-Psych Electives 10

Fourth Year
First Term Hours
Group I Psych Elective1 3
Psych Elective 3
Tier III Course [T] (GER) 3
300-400-level Non-Psych Electives 7
Second Term Hours
Non-Psych Electives 15
Psych Electives 1-4

Footnotes
1 Please note that if you take only 3 credits of science elective, you will need to take another 1-credit science elective (i.e. Biol 201).

Recommended Courses:
One 3 hour course from Psych 445, 497, 498, 499. Psyh electives will be chosen in consultation with advisor.

Numerous electives during the first two years mathematics, biology, physics, chemistry, literature, history, philosophy, sociology, anthropology contribute substantially to the study of psychology. Again, consultation with a mentor advisor is recommended prior to selecting either Psych courses or supporting courses in other areas.

Students in the Honors Program and transfer students should ask about modifications in the above schedule for the Psych majors. Students interested in combining a psychology major with the certificate program in Helping Skills or Abnormal Child Psychology should inquire at the Department of Psychology main office, JT233.

Minors

Addiction Studies (Vancouver only)
A minor in addiction studies requires 17 – 22 hours depending on the track. The three tracks are: Track 1 (professional certification): comprising coursework primarily in the department of psychology and aimed at preparing students for certification as chemical dependency professionals (CDP) in Washington State. Track 2 (non-certification): comprising coursework primarily in the departments of sociology and criminal justice, aimed at students preparing for careers in public policy, law enforcement, social work, and related fields, who wish to obtain additional training in the political, social, and cultural components of addictive behaviors (but who do not wish to be certified as chemical dependency professionals in Washington State). Track 3 (interdisciplinary): integrating psychological, behavioral, sociological, and criminal justices issues into models of addiction intervention and prevention. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU and through WSU-approved education abroad or educational exchange courses.

Psychology
The minor in psychology may be certified after the completion of 60 semester hours. It requires 18 credit hours in Psych, of which at least 9 must be taken at WSU and at least 9 must be in graded 300-400-level courses.

Psych 105 or 198 is required and a statistics or research methods course is strongly recommended. A minimum GPA of 2.00 or higher is required in all coursework used for the minor.

Certificates

Abnormal Child Psychology
The certificate in abnormal child psychology requires a minimum of 21 hours. The 9 hour core is: Psych 361, 464, 465. 12 hours of electives are selected from: H D 300, 301, 302, 482, Soc 362, SHS 371, 476, Psych 412, 444, 445. A minimum GPA of 2.00 or higher is required in all coursework used for the certificate.

Helping Skills
The certificate in helping skills requires a minimum of 20 hours. The 8 hour core is: Psych 333, 440, 444. 12 hours of electives are selected from: Psych 230, 265, 320, 321, 324, 363, 390, 412, 445, and 464. A minimum GPA of 2.00 or higher is required in all coursework used for the certificate.

Description of Courses

Psychology Courses

Psych

105 [S] Introductory Psychology 3
Contemporary psychology: biological and social influences on normal and abnormal human behavior. Credit not granted for both Psych 105 and 198.
106 Psychology Applied to Daily Living: Dealing with Friends, Alcohol, and Sex  
3 Rec Psych 105 or 198. Application of psychological procedures to the problems of group living, alcohol use, sexual decision making and related social issues.

198 [S] Psychology Honors 3 Prereq admittance to the Honors College. Credit not granted for both Psych 105 and 198.

203 [S] Introduction to Critical Psychology 3 Prereq Psych 105 or 198. Same as CES 203.

230 Human Sexuality 3 Prereq Psych 105 or 198. Sexuality in personal development; personal, cultural, biological influences on sexual identification and behavior; fertility, reproduction, sexual functioning, sexuality and personality.

265 [B] Biopsychological Effects of Alcohol and Other Drugs 3 Prereq Biol 102 or 107; Psych 105 or 198. Biopsychological effects of the major classes of abused and psychotherapeutic drugs, including alcohol, stimulants, sedatives and hallucinogens.

275 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

301 Seminar in Psychology V 1-3 May be repeated for credit; cumulative maximum 6 hours. Rec 6 hours Psych.

306 Industrial Psychology 3 Prereq Psych 105 or 198. Job analysis and evaluation; personnel recruitment and selection; design and evaluation of training systems; performance appraisals.

307 Human Factors 3 Prereq Psych 105 or engineering major. Human limitations and capabilities in architectural and engineering design; system analysis.

308 Organizational Psychology 3 Prereq Psych 105 or 198. Employee motivation satisfaction and commitment; organizational communication; leadership; group behavior, teams and conflict; organizational change and development.

309 [S,D] Cultural Diversity in Organizations 3 Rec Psych 105 or 198. Psychology applied to cultural diversity in organizations; interpersonal and intergroup relationships; diversity training; EEO legislation and affirmative action.

310 Pseudoscience and Human Behavior 3 Prereq Psych 105 or Psych 198. Evaluation of scientific claims in the behavioral sciences and everyday life.

311 Elementary Statistics in Psychology 4 Prereq college level math course with a grade of C- or better. Descriptive statistics, probability, and inference; design and interpretation of research.

312 [M] Experimental Methods in Psychology 4 (3-3) Prereq Psych 105 or Psych 198; Psych 311 or statistics course with a grade of C- or better. Designing, conducting, and reporting research in selected areas of experimental psychology.

316 Applied Research in Psychology 3 (2-3) Prereq Stat 212 or statistics course. Experimental design and statistics; research; problem solving in small group situations.

320 Health Psychology 3 Prereq Psych 105 or Psych 198. Psychological and physiological aspects of stress; health behavior and disease prevention; adjustment to chronic illness.

321 Introduction to Personality 3 Prereq Psych 105 or Psych 198. Theories, concepts, methods, discoveries in psychology of personality.

324 [S,D] Psychology of Women 3 Prereq Psych 105 or Psych 198. Socialization and sex roles of women; a psychological perspective.

328 [M] Self Control 3 Prereq Psych 105 or Psych 198. Analysis of self-control problems; application of behavioral principles to student-conducted projects.

333 Abnormal Psychology 3 Prereq Psych 105 or Psych 198; 3 hours Psych. Problems of abnormality from traditional and evolving points of view; types, therapies, outcomes, preventive techniques.

342 Assessment and Treatment of Dual Diagnosis 3 Prereq Psych 105. Development of conceptual frameworks to guide the treatment and research of patient's co-occurring chemical dependency and psychiatric disorders.

350 [S] Social Psychology 3 Prereq Psych 105, Psych 198, or Soc 101. Attitude changes, conformity, interpersonal relations, groups and social influences explored to give a coherent view of social psychology.


363 Psychology of Aging 3 Rec Psych 105 or Psych 198. Psychological processes of aging; changes in sensory, motor, cognitive, motivational and personality characteristics; research methodologies for the study of aging.

372 [B] Introduction to Physiological Psychology 3 Prereq Biol 102 or Biol 107; Psych 105 or Psych 198. Functional relationship between nervous system and behavior; integrated organ systems, sensory processes, and investigative procedures. Occasional lab meetings required; see instructor for times.

384 Sensation and Perception 3 Prereq Psych 105 or Psych 198. Perception of size, depth, form, shape; illusions, contrast; historical and modern theories and research; applications and demonstrations.

390 Operant Behavior 3 Prereq Psych 105 or Psych 198. Principles of operant and classical conditioning.


403 [T,D] Cultural Issues in Psychology 3 Prereq 3 hours cultural psychology. Same as CES 403.

409 Affective Neuroscience 3 Prereq A S 440, Biol 353, Neuro 301, or Psych 372. Same as Neuro 409. Credit not granted for both Psych 409 and 509.

412 Psychological Testing and Measurement 3 Prereq Psych 311 or statistics course. Assessment of behavioral variables in humans; individual differences. Cooperative course taught by WSU, open to UI students (Psych 412).

440 [M] Clinical/Community Psychology 3 Prereq Psych 333. Professional problems; theory, training, relations with clients, institutions, public.

442 Advanced Addiction Treatment Techniques 4 (3-2) Prereq Psych 265; 342. Advanced addiction treatment approaches for individuals, couples, families and groups within a human services framework; integration of relapse prevention techniques.

444 Basic Helping Skills V 2 (0-6) or 3 (0-9) Prereq 6 hours Psych; junior standing. Training in basic skills to work with varied types of clients; didactic and role play instruction. S, F grading.

445 Undergraduate Practicum V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 6 hours. Prereq 6 hours Psych; junior standing. Supervised experience in local and county agencies; application of psychological principles to paraprofessional counseling. S, F grading.

448 Engineering Psychology 3 Application of principles of experimental psychology to analysis of interaction of the human operator with machine systems and work environments; emphasis on psychological aspects of human performance. Cooperative course taught by UI (Psych 446); open to WSU students.

464 Behavior Disorders of Children and Adolescents 3 Prereq Psych 105 or Psych 198; Psych 361. Theoretical and empirical approaches to the description, etiology, and treatment of behavior disorders in children and adolescents.

465 Neuropsychology of Learning Disorders 3 Prereq Psych 105 or Psych 198; Psych 361. Biological and cognitive aspects of learning disorders including etiology, common cognitive deficits, and treatment of cognitive dysfunction.

466 Environmental Psychology 3 Prereq Psych 105 or Psych 198. Psychological concepts applied to the mixture of positive and negative interactions individuals have with their physical environment.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Credits</th>
<th>Repeatable for Credit</th>
<th>Grading</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>470 Motivation</td>
<td>3 Prereq Psych 105 or Psych 198, Rec Psych 372, Psych 390, or Psych 490</td>
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<td>3</td>
<td>Prereq by interview only. Psychometric theory, theories of personality, objective and projective methods of assessing personality, development of testing and interpretive skills.</td>
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<tr>
<td>480 Special Topics: Study Abroad</td>
<td>V 1-15 May be repeated for credit. S, F grading.</td>
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<tr>
<td>490 Cognition and Memory</td>
<td>3 Prereq 6 hours Psych, Human information processing, memory, and cognition.</td>
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<tr>
<td>492 [T] Psychology of Language</td>
<td>3 Prereq Psych 105 or Psych 198; one Tier I course; three Tier II courses. The cognitive and neuropsychological processes involved in the acquisition and use of language; cross-cultural perspectives on language and thought.</td>
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<tr>
<td>495 Field Experience in Personnel Psychology</td>
<td>V 2 (0-6) to 6 (0-18) May be repeated for credit; cumulative maximum 12 hours. Prereq MgtOp 450 or Psych 306. Supervised experience in local industries and organizations; application of personnel psychology and resource management principles to work environments.</td>
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<td>S, F grading.</td>
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<tr>
<td>496 Cooperative Education Internship</td>
<td>V 2-6 May be repeated for credit; cumulative maximum 12 hours. Prereq Psych 445. Off-campus cooperative education internship with business, industry, or government unit coordinated through the Professional Experience Program. S, F grading.</td>
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<td>497 Instructional Practicum</td>
<td>V 1-4 May be repeated for credit; cumulative maximum 4 hours. S, F grading.</td>
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<td>498 Research Participation</td>
<td>V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq 6 hours Psych; by interview only. Participation in the current research of departmental faculty. S, F grading.</td>
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<td>499 Special Problems</td>
<td>V 1-4 May be repeated for credit. S, F grading.</td>
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<td>502 Research Design</td>
<td>V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 16 hours. S, F grading. Research design, equipment, data collection, data analysis, and report writing. S, F grading.</td>
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<tr>
<td>504 History of Psychology: Theoretical and Scientific Foundations</td>
<td>3 Roots of scientific explanation in psychology traced through various philosophical schools and psychological movements.</td>
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<tr>
<td>505 Teaching Introductory Psychology</td>
<td>V 1-3 May be repeated for credit; cumulative maximum 4 hours. Prereq graduate standing. Problems and techniques related to teaching introductory psychology. S, F grading.</td>
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<tr>
<td>506 Current Research in Psychology</td>
<td>1 Current research being conducted by psychology faculty and members of associated departments.</td>
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<td>507 Topics in Psychology</td>
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<td>509 Affective Neuroscience</td>
<td>3 Prereq graduate standing. Same as Neuro 509.</td>
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<tr>
<td>511 Analysis of Variance and Experimental Design</td>
<td>4 Prereq Psych 311 or statistics course. Parametric, nonparametric, repeated-measures, and multivariate ANOVA; planned comparisons; confidence intervals and power analysis; experimental design and variants.</td>
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<tr>
<td>512 Correlation, Regression, and Quasi-Experimental Design</td>
<td>3 Prereq Psych 511. Simple and multiple correlation and regression; time-series analysis; factor analysis; field research and quasi-experimental design.</td>
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<tr>
<td>513 Seminar in Quantitative Methods and Research Design</td>
<td>3 May be repeated for credit. Prereq Psych 512. Advanced topics in specialized quantitative procedures and in design of research in psychology.</td>
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<td>514 Psychometrics</td>
<td>3 Prereq Psych 512. Scientific construction of behavioral assessment instruments, including validation and reliability; types of scales and responses; statistical scaling; test theory issues.</td>
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<td>515 Multilevel and Synthesized Data</td>
<td>3 Prereq Psych 512. Structural equation modeling, hierarchical linear modeling and meta-analysis and the software used to conduct these analyses.</td>
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<tr>
<td>516 Applied Structural Equation Modeling with Current Software</td>
<td>3 Prereq Psych 511; Psych 512; Psych 514; Psych 515. Confirmatory factor analysis, path analysis, structural regression analysis, multilevel analysis and latent growth analysis with current software.</td>
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<td>519 Industrial/Organizational Psychology</td>
<td>3 Application of psychological principles to the study of work behavior; includes topics such as personnel selection, performance appraisal, training, work motivation, teams, leadership, and job attitudes. Cooperative course taught by UI (PsyC 516); open to WSU students.</td>
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<tr>
<td>520 Empirical Approaches to Psychotherapy</td>
<td>3 Prereq Psych 533. Major therapy systems, research on process and outcome of therapy.</td>
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<tr>
<td>530 Professional, Ethical, and Legal Issues</td>
<td>3 Application of professional, ethical, and legal issues in clinical psychology to such topics as confidentiality, dual-relationships, research, assessment, and intervention.</td>
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<td>533 Adult Psychopathology</td>
<td>3 Prereq by interview only. Theoretical and empirical approaches to diagnosis, etiology and treatment of mental disorders. Cooperative course taught by WSU, open to UI students (Psych 575).</td>
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<tr>
<td>534 Clinical Psychopharmacology</td>
<td>3 Prereq Psych 533. Classification, clinical application, and mechanisms of psychotherapeutic drugs used in the treatment of mental disorders.</td>
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<tr>
<td>535 Clinical Assessment and Diagnosis</td>
<td>3 Diagnostic interviewing, conceptualization of clinical problems, case presentations, and treatment planning.</td>
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<td>536 Measurement Theory and Personality Assessment</td>
<td>3 Prereq by interview only. Psychometric theory, theories of personality, objective and projective methods of assessing personality, development of testing and interpretive skills.</td>
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<td>537 Psychology Clinic Assessment Practicum</td>
<td>3 May be repeated for credit; cumulative maximum 18 hours. Prereq Psych 539 or by interview only. Supervised practice in psychological assessment in the Psychology Clinic. S, F grading.</td>
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<tr>
<td>538 Child Therapy Practicum</td>
<td>3 May be repeated for credit; cumulative maximum 18 hours. Prereq by interview only. Supervised practice in the clinical application of psychology with children and families. S, F grading.</td>
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<tr>
<td>539 Measurement Theory and Intellectual Assessment</td>
<td>3 Prereq by interview only. Psychometric theory, theories of intelligence, methods of appraising intelligence in children and adults, and development of testing and interpretive skills.</td>
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<td>541 Social Psychology in the Workplace</td>
<td>3 Overview of the general theory and methods of organizational psychology; focus on how individual or group behavior is affected by the organizational environment; includes topics such as work motivation, leadership, teams, culture/climate, and job attitudes. Cooperative course taught by UI (Psych 541); open to WSU students.</td>
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<tr>
<td>543 Child Clinical Psychology: Empirical Approaches to Assessment and Therapy</td>
<td>3 Research on developmental psychopathology; child assessment, and child therapy.</td>
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<tr>
<td>544 Medical Psychology: Psychological and Pharmacological Interventions</td>
<td>3 Psychological factors and their influence upon the causes and/or course of medical illnesses as well as relevant clinical interventions. Cooperative course taught by WSU, open to UI students (Psych 544).</td>
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<tr>
<td>545 Psychology Clinic Adult Therapy Practicum</td>
<td>3 (0-9) May be repeated for credit; cumulative maximum 18 hours. Prereq by interview only. Supervised practice in the clinical application of psychology with adults in the Psychology Clinic. S, F grading.</td>
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<tr>
<td>546 Counseling Service Practicum</td>
<td>V 1-3 May be repeated for credit; cumulative maximum 12 hours. Prereq Psych 545 or c/c. By interview only. Supervised practice in the clinical application of psychology at the WSU Counseling Service. S, F grading.</td>
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<td>3</td>
<td></td>
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</tr>
<tr>
<td>547 Medical Psychology Practicum</td>
<td>3 May be repeated for credit; cumulative maximum 18 hours. Prereq by interview only. Supervised practice in the clinical application of psychology at the WSU Health and Wellness Service. S, F grading.</td>
<td></td>
<td>3</td>
<td></td>
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<tr>
<td>548 Clinical Externship</td>
<td>V 1-3 May be repeated for credit; cumulative maximum 18 hours. Prereq by interview only. Supervised practice in the clinical application of psychology at approved hospitals and medical practices. S, F grading.</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
550 Attitudes and Social Cognition 3 Attitude structure, function, and change; social cognition and motivation, and attributions. Cooperative course taught by WSU, open to UI students (Psych 520).

551 Group and Interpersonal Processes 3 Theories and research in interpersonal dynamics; cognitive, learning, equity, and attributional concepts; group performance and interpersonal interaction, social influence, distributive and procedural justice, helping, and attraction.

552 Diversity Issues in Psychology 3 Research, theories, and controversies regarding the role of human diversity in psychotherapy, psychological assessment, and clinical research.

555 Personnel Psychology 3 Review of theory and methods related to personnel issues; includes topics such as individual differences, selection, psychometrics, compensation, training programs, and performance appraisal. Cooperative course taught by UI (Psych 535); open to WSU students.

561 Human-Computer Interaction 3 Overview of human-computer interaction (HCI) topics, including user models, dialog, display design, usability, software development, groupware, and multimedia. Cooperative course taught by UI (Psych 561); open to WSU students.

562 Advanced Human Factors 3 Review of topics and theories germane to human factors such as performance measurement systems, design specifications, research issues, controls and displays, human reliability, and illumination. Cooperative course taught by UI (Psych 562); open to WSU students.

574 Physiological Psychology 3 Neuroanatomical, neurochemical, and other biological cases of human and animal behavior. Cooperative course taught by WSU; open to UI students (Psych 565).

575 Foundations of Neuropsychology 3 Foundations in brain-behavior relationships and neuropathological syndromes; preparation for advanced training in neuropsychological assessment. Cooperative course taught by WSU; open to UI students (Psych 575).

576 Neuropsychological Assessment 3 Prereq Psych 575. Brain-behavior relationships in humans and the evaluation of cognitive, behavioral, and emotional changes accompanying a variety of neuropsychiatric syndromes.

577 Behavioral Pharmacology 3 Prereq Psych 574 or graduate standing in Neuro or P/T. Survey of drugs which affect brain function with emphasis on animal models and clinical applications. Cooperative course taught by WSU; open to UI students (Psych 566).

579 Behavioral Neuroscience 3 Prereq Psych 574 or graduate standing in Neuro or P/T. Advanced topics in neurochemistry, neurophysiology, and neuroanatomy, as they relate to behavior. Cooperative course taught by WSU; open to UI students (Psych 567).

584 Sensory Bases of Behavior 3 Sensory and physiological aspects of vision, audition, and other senses. Cooperative course taught by WSU; open to UI students (Psych 568).

591 Models of Learning 3 Historical and current theory and research in learning and cognition.

592 Cognition and Memory 3 Experimental approaches to human information processing, memory, and cognition.

595 Clinical Internship in Psychology V 2-16 May be repeated for credit; cumulative maximum 16 hours. Prereq passing of preliminary exams and completion of course work for PhD. Clinical training in an internship approved by American Psychological Association or by WSU, S, F grading.

600 Special Projects or Independent Study 3 Variable credit S, F grading.

700 Master's Research, Thesis, and/or Examination 3 Variable credit S, F grading.

702 Master's Special Problems, Directed Study and/or Examination 3 Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination 3 Variable credit S, F grading.

Public Affairs, WSU
Vancouver

www.vancouver.wsu.edu/programs/pa/pa.htm
Multimedia Classroom Bldg, Room 102E
360-546-9475

Academic Director, A. Wharton; Program Director, P. Thiers; Professors, J. Goodstein, T. Trepa; Associate Professors, L. Drapela, C. Long, C. Mosher, M. Stephany; Assistant Professors, D.L. Baker, D. Jaffee, A. Maclean, D. Wood.

The Bachelor of Arts in Public Affairs seeks to develop critical thinking about political and social values and develop the ability to conduct objective analysis of political structures and bureaucratic processes. The degree program is designed to educate people for service in public and nonprofit agencies and to prepare students for graduate or law school. The program's multidisciplinary perspective provides for the blending of theory, methodology, and experience in an academically rigorous degree format.

WSU Vancouver offers a Master's Degree in Public Affairs (M.P.A.). The M.P.A. program, which is housed in the Department of Political Science, draws on a wide variety of academic disciplines, including political science, sociology, business administration, economics, health policy administration, environmental and research science/regional planning, and criminal justice.

The Bachelor of Arts in Public Affairs at WSU is designed to accommodate the needs of working students. The degree can be completed entirely in the evenings and most students continue to work full time during the day when completing their degree. Seminars are small, ranging from 10 to 20 students, and typically meet one evening a week. Class structure includes lectures, small group discussions, and individual and group presentations. The program takes two or more years to complete; the exact length of time required to complete the degree depends on how many classes are taken each semester.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

PUBLIC AFFAIRS (VANCOUVER ONLY) (120 HOURS)

The Bachelor of Arts in Public Affairs requires students to earn at least a C grade or higher in all core courses and no core courses may be taken pass/fail. In addition, only 6 hours in the concentration may be taken pass/fail.

Certification Requirements

To certify in Public Affairs, students must have at least 24 semester hours and an overall minimum GPA of 2.75 or higher. Once certified, all students must maintain a minimum overall GPA of 2.75 or higher or they will be decertified.

First Year

First Term  Hours
Biological Sciences [B] (GER)  4
Engl 101 [W] (GER)  3
Foreign Language, if necessary, or Elective  3
GE 101 [E] (GER)  1
GE 105 [V] (GER)  3
Pol S 101 [S] (GER)  3

305
Second Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Foreign Language, if necessary, or Elective</td>
<td>3</td>
</tr>
<tr>
<td>GE 106 [V] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math Proficiency [N] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Social Science [S,K] GER</td>
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**Second Year**

**First Term**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>GE 103 [E] (GER)</td>
<td>1</td>
</tr>
<tr>
<td>GE 110 [A] (GER)</td>
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</tr>
<tr>
<td>Physical Sciences [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Pol S 300</td>
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<td>Pol S 316</td>
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**Second Term**

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<tr>
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</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Biological [B] or Physical [P] Sciences (GER)</td>
<td>4</td>
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<tr>
<td>GE 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural Studies [I,G,K] GER</td>
<td>3</td>
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<tr>
<td>Pol S 340</td>
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**Complete Writing Portfolio**

**Third Year**

**First Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
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<tr>
<td>Minor Elective[^1]</td>
<td>3</td>
</tr>
<tr>
<td>PA Elective[^2]</td>
<td>6</td>
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<tr>
<td>Soc 320</td>
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**Second Term**

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>PA Elective[^2]</td>
<td>6</td>
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<tr>
<td>Pol S 432 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Soc 321</td>
<td>4</td>
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<td>Electives</td>
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**Fourth Year**

**First Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
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<td>Minor Elective[^1]</td>
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<tr>
<td>PA Elective[^2]</td>
<td>3</td>
</tr>
<tr>
<td>Pol S 442 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Tier III [T] GER</td>
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**Second Term**

<table>
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<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>GE 401 [E] (GER)</td>
<td>1</td>
</tr>
<tr>
<td>Minor Elective[^1]</td>
<td>9</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
</tbody>
</table>

Footnotes

[^1]: A minor is recommended, but not required. The minor must total 16 to 18 semester hours, including at least six credits of upper-division coursework, and must be in an area other than criminal justice or political science.

[^2]: 15 semester hours is required in one of three concentration options: public policy and politics, public administration and management, or justice studies. See department for an approved list of courses.

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**Sciences**

**Description of Courses**

**Science Courses**

**Sci**

101 [Q] Origins in the Natural World 4 (3-3)
Interdisciplinary approach to science in the modern world for non-science majors. If both Sci 101 and 102 are taken, students satisfy [B], [P] and laboratory requirement.

102 [Q] Dynamic Systems in the Natural World 4 (3-3)
Interdisciplinary approach to science in the modern world for non-science majors. If both Sci 101 and 102 are taken, students satisfy [B], [P] and laboratory requirement.

210 Your Future in Life Sciences 2 Exploration of career options in biological sciences with faculty and outside speakers; guide to preparing resume and career plans. S, F grading.

220 [B] DNA Today 4 (3-3) Prereq Math [N] course or c//. Introduction to the molecular world of DNA, the blueprint of life.

230 [P] Introduction to Ocean Science 3 Prereq Math [N] course or c//. Interdisciplinary study of oceans as part of the earth system; natural history, influence on climate and response to human activity.

298 (198) The Sciences for Honors Students I 4 (3-3) Prereq honors students only. Interdisciplinary approach to science in the modern world developed specifically for students not majoring in the sciences.

299 (199) The Sciences for Honors Students II 4 (3-3) Prereq Sci 298. Interdisciplinary approach to science in the modern world developed specifically for students not majoring in the sciences.

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**Sciences, General Studies Program**

[www.sci.wsu.edu/cos/generalstudies.html](http://www.sci.wsu.edu/cos/generalstudies.html)

Troy 305
509-335-4549

Coordinator, V. Fisher.

General Studies is for students who have varied interests that may cut across the usual departmental boundaries and who wish to play a role in deciding on a suitable curriculum of study.

The degree is offered is the Bachelor of Science. The degree is not identified with a specific subject-matter field on the diploma.

The General Science Program seeks to prepare students for a wide variety of opportunities after graduation ranging from professional and graduate school to entry into business and industry. Graduates of the General Science program are expected to:

1) have a thorough understanding and knowledge of their major area of study;
2) understand and critically analyze research and journals from their field;
3) communicate clearly about their field to a wide variety of audiences, and
4) understand that they will need to engage in lifelong learning to stay current in their field.

**Prerequisite Courses**

General Biological Sciences (Gen B): One year biology, one semester introductory calculus, one year general chemistry, and one semester organic chemistry.

General Physical Sciences (Gen P): One year calculus, one year calculus-based physics, and one year general chemistry. (Students who plan a major concentration in chemistry should also include quantitative and organic chemistry. Physical geology is a prerequisite for 300-400-level geology courses.)

General Mathematics (Gen M): three semesters of calculus and linear algebra.

**General Studies—Biological/Mathematical/Physical Sciences**

**Plan A—Primary/Secondary Concentration:**

Primary concentration: a minimum of 24 semester credits, including at least 15 300-400-level credits, must be completed in biological sciences, in mathematics or in a single physical science with a minimum 2.00 primary concentration GPA. Students who complete one of the above primary concentrations will receive a Bachelor of Science degree with a primary concentration in general biological sciences (Gen B), general mathematics (Gen M) or general physical sciences (Gen P).

Secondary concentration: a minimum of 15 semester credits, including at least 6 300-400-level credits, must be completed in another academic department, program or area published in the catalog with a minimum 2.00 minor concentration GPA.

**Plan B—Three Related Areas in Biological Sciences or Physical Sciences:**

A combination of biological sciences or physical sciences courses of at least 39 credits in three or more departments or programs, 9 credits in each department or program area are required and 21 300-400-level hours must be completed with at least a 2.0 GPA in these courses. The related areas in general biological sciences (Gen B) include biology, biochemistry, botany, genetics and cell biology, microbiology, zoology and approved biology-based courses in agriculture. The related areas in general physical sciences (Gen P) include astronomy, chemistry, geology, physics, and approved courses in computer sciences and engineering. Students who complete a Plan B curriculum receive a Bachelor of Science degree.

**Schedules of Studies**

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.
### GENERAL STUDIES - BASIC MEDICAL SCIENCES PLAN A (120 HOURS)

**First Year**
- **First Term**
  - Biol 106 [B] (GER) 4
  - Chem 105 [P] (GER) 4
  - Engl 101 [W] (GER) 3
  - GenEd 110 [A] (GER) 3
- **Second Term**
  - Biol 107 [B] (GER) 4
  - Chem 106 [P] (GER) 4
  - GenEd 111 [A] (GER) 3
  - Math 140 [N] or 171 [N] (GER) 4

**Second Year**
- **First Term**
  - Communication Proficiency [C, W] (GER) 3
  - Chem 345 4
  - MBioS 301 4
  - Elective 3
- **Second Term**
  - Social Sciences [S, K] (GER) 3
  - Chem 346 3
  - Elective 9
  - Complete Writing Portfolio

**Third Year**
- **First Term**
  - Arts & Humanities [H, G], Intercultural Studies [I, G, K], or Social Sciences [S, K] (GER) 3
  - Intercultural Studies [I, G, K] (GER) 3
  - MBioS 303 4
  - Phys 101 [P] (GER) 4
  - Elective 4
- **Second Term**
  - Phil 365 [H] (GER) 3
  - Phys 102 [P] (GER) 4
  - Elective 9

**Fourth Year**
- **First Term**
  - Arts & Humanities [H, G], or Social Sciences [S, K] (GER) 3
  - Degree Program Elective 6-8
  - Elective 6
- **Second Term**
  - Arts & Humanities [H, G], Intercultural Studies [I, G, K], or Social Sciences [S, K] (GER) 3
  - Degree Program Elective [M] 2-4
  - Elective 6
  - Tier III Course [T] (GER) 3

### GENERAL STUDIES - BASIC MEDICAL SCIENCES PLAN B (120 HOURS)

**First Year**
- **First Term**
  - Biol 106 [B] (GER) 4
  - Chem 105 [P] (GER) 4
  - Engl 101 [W] (GER) 3
  - GenEd 110 [A] (GER) 3
- **Second Term**
  - Biol 107 [B] (GER) 4
  - Chem 106 [P] (GER) 4
  - GenEd 111 [A] (GER) 3
  - Math 140 [N] or 171 [N] (GER) 4

**Second Year**
- **First Term**
  - Communication Proficiency [C, W] (GER) 3
  - Chem 345 4
  - MBioS 301 4
  - Phys 101 [P] (GER) 4
- **Second Term**
  - Chem 346 3
  - MBioS 305 3
  - MBioS 306 3
  - Phys 102 [P] (GER) 4
  - Social Sciences [S, K] (GER) 3
  - Complete Writing Portfolio

**Third Year**
- **First Term**
  - Arts & Humanities [H, G], Intercultural Studies [I, G, K], or Social Sciences [S, K] (GER) 3
  - Intercultural Studies [I, G, K] (GER) 3
  - MBioS 303 4
  - Degree Program Elective 3-4
  - Elective 3
- **Second Term**
  - Phil 365 [H] (GER) 3
  - Degree Program Elective 6-8
  - Elective 8

**Fourth Year**
- **First Term**
  - Arts & Humanities [H, G], or Social Sciences [S, K] (GER) 3
  - Degree Program Elective 3-4
  - Elective 3
  - Tier III Course [T] (GER) 3

### GENERAL STUDIES - BIOLOGICAL/MATHEMATICAL/PHYSICAL SCIENCES PLAN A AND PLAN B (120 HOURS)

The Biological/Mathematical/Physical Sciences plan within General Studies is for students who are interested in interdisciplinary programs in science or mathematics which offer broader options in course selections than are possible within single departments. Students who wish to earn a Bachelor of Science degree will devise an approved, coherent program of study with the coordinator which fulfills an academic or career goal and includes prerequisites consistent with the 300-400-level major course work. In addition, each student will satisfy the General Education Requirements and any additional requirements of the College of Sciences.

**Plan A—Primary/Secondary Concentration**

Primary concentration: a minimum of 24 semester credits, including at least 15 300-400-level credits, must be completed in biological sciences, in mathematics or in a single physical science with a minimum 2.00 primary concentration GPA. Students who complete one of the above primary concentrations will receive a Bachelor of Science degree with a primary concentration in general biological sciences (Gen B), general mathematics (Gen M) or general physical sciences (Gen P).

Secondary concentration: a minimum of 15 semester credits, including at least 6 300-400-level credits, must be completed in another academic department, program or area published in the catalog with a minimum 2.0 minor concentration GPA.

**Plan B—Three Related Areas in Biological Sciences**

A combination of biological sciences courses of at least 39 credits in three or more departments or programs. 9 credits in each department or program area are required and 21 300-400-level hours must be completed with at least a 2.0 GPA in these courses. The related areas in general biological sciences (Gen B) include biology, biochemistry, botany, genetics and cell biology, microbiology, zoology and approved biology-based courses in agriculture. Students who complete a Plan B curriculum receive a Bachelor of Science degree with a primary concentration in general biological sciences (Gen B).

**Prerequisite Courses**

- General Biological Sciences (Gen B): One year biology, one semester introductory calculus, one year general chemistry, and one semester organic chemistry.
- General Physical Sciences (Gen P): One year calculus, one year calculus-based physics, and one year general chemistry.(Students who plan a major concentration in chemistry should also include quantitative and organic chemistry. Physical geology is a prerequisite for 300-400-level geology courses.)
- General Mathematics (Gen M): three semesters of calculus and linear algebra.

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**Footnotes**

1. Chem 101 may be taken prior to Chem 105
2. Math 107 may be taken the first semester as a prerequisite to other math courses and as a co-requisite to Chem 105. In addition to either Math 140 or 171 a statistics course such as Math 212, Introduction to Statistical Methods, is highly recommended. For some programs, required.
3. Students are encouraged to pursue a minor in other areas of more in-depth science minor.
4. An elective may be substituted for Phys 101 and 102 if it is not required for entrance to a graduate or professional program.
Sociology

Sociology is the scientific study of social life. The fundamental insight of the discipline is that the social matters; our lives are affected not only by our personal psychology, but by our place in the social world.

Courses in sociology are designed to provide the student with an understanding of what makes people and groups of people behave the way they do. They cover a wide range of issues, from inequality to human ecology, from deviance to religion, from medicine to politics. Few fields offer students (and researchers) opportunities of such breadth. The course of study for majors is flexible enough to accommodate a variety of individual interests. Some knowledge of sociology is widely regarded as a useful supplement to the course work in most fields.

The undergraduate sociology major provides excellent preparation for careers in a variety of occupations, including public relations, teaching, positions in government, social agencies, and industry; or as a foundation for careers in professions such as community planning, counseling, law, medicine, the ministry, politics, or public administration.

The department offers courses of study leading to the degrees of Bachelor of Arts in Sociology, Master of Arts in Sociology, and Doctor of Philosophy. At the completion of the Bachelor of Arts degree in sociology, students will be able to 1) understand themselves in relationship to society, 2) understand the relationship between society and the physical world, 3) have a depth and breadth of sociological knowledge, 4) apply their sociological knowledge to “real world” situations, 5) reason symbolically and quantitatively, 6) conduct/evaluate empirical research, 7) think critically, 8) communicate effectively orally and in writing, 9) enhance life skills such as civility and cooperation, and 10) respect social diversity.

Sociology Requirements

A Bachelor of Arts degree in sociology requires a minimum of 31 hours of sociology coursework in which students must maintain a C average. All majors must complete five required core courses as well as five elective courses in sociology. In addition, students must earn 24 credit hours in related fields, half of which must be in 300-400 level courses. Related field courses enable students to individualize their programs of study to best meet their academic and career goals. Students select related field courses from a departmentally approved list and in consultation with a faculty advisor.

Required Core Courses

The following courses are required of all majors: Soc 101, Soc 310, Soc 317 [M], and Soc 321, and one of the following "capstone experience" courses: Soc 495 [M], Soc 496 [M], or Soc 497 [M].

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

SOCIOLoGY - BaCHeLOR OF ARTS

(120 HOURS)

This is a prototype of one of many ways to complete the sociology degree program in four years. The program has built-in flexibility. Students should consult their advisors regarding other acceptable course plans.

Students must meet the graduation requirements of the College of Liberal Arts. They are encouraged to make a broad and balanced sampling of GER courses to meet the university's goal for a general education, as well as to explore or confirm possible major and career interests.

First Year

First Term

First Term Hours

Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math Proficiency [N] (GER) 3
Social Sciences [S,K] (GER) 3
Elective 3

Second Term

Second Term Hours

Arts & Humanities [H,G] (GER) 3
Communication Proficiency [C,W] (GER) 3
GenEd 111 [A] (GER) 3
Science Elective (GER) 4
Elective 2

Second Year

First Term

First Term Hours

Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 6
Biological Sciences [B] (GER) 4
Intercultural Studies [I,G,K] (GER) 3
Elective 3

Second Term

Second Term Hours

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Physical Sciences [P] (GER) 4
Soc 101 [S] (GER) 3
Soc Elective 3
Elective 3
Complete Writing Portfolio

Third Year

First Term

First Term Hours

Related Field Electives 6
Soc 310 3
Soc 317 3
Soc Elective [M] 3

Second Term

Related Field Electives 9
Elective 9
Tier III Course [T] (GER) 3

Minors

Sociology

The minor in sociology may be certified after completion of 60 semester hours. It requires a minimum of 18 credit hours in sociology, including Soc 101, 320, and at least 9 additional graded hours of 300-400-level courses taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Any Soc course may be counted toward the minor (subject to the above provisions). Only 3 credits of Soc 495 may apply to the minor. A gpa of 2.0 is required for the minor.

Description of Courses

Sociology Courses

Soc

101 [S,D] Introduction to Sociology 3 Human society and social behavior; effects of groups, organizations, cultures, and institutions.

102 [S,D] Social Problems 3 The structure of social institutions and cultural factors that constitute threats to society (crime, poverty, discrimination, drugs, family violence).

150 [S,D] Marital and Sexual Life Styles 3 Traditional and alternative marriage styles; social and personal factors in mate selection; sexual life styles; development of sex roles.

198 [S] Introduction to Sociology Honors 3 Open only to students in the Honors College.

250 [S,D] Perspectives on Disability 3 Same as DisSt 250.

270 Personal Identity and Social Interaction 3 Development of self concept in social interaction; attitudes, values, beliefs and behaviors; conformity and interpersonal influence.

298 Special Topics in Sociology: Study Abroad V 1-15 May be repeated for credit. S, F grading.

300 [S,M] Intersections of Race, Class, Gender and Sexuality 3 Prereq CES 101, Soc 101, or W St 200. Same as W St 300.

302 [S,D] Contemporary Masculinity and Men's Issues 3 Same as W St 302.
310 Development of Social Theory 3 Prereq Soc 101. Foundations of sociological theory; introduction to original works of early social theorists.


320 Introduction to Social Research 3 Prereq Soc 101. Methods of collecting data; surveys, experiments, field observations; organization and interpretation of data; reading social research findings.

321 Quantitative Techniques in Sociology I 4 Levels of measurement; measures of central tendency; dispersion and association; normal curve, statistical inference; logic of quantitative comparison and decision making.

331 [S] Population, Resources, and the Future 3 Effects of population on resource depletion, environmental deterioration, social and economic structure; zero population growth prospects; limits to growth debate.

332 [M] Society and Environment 3 Prereq Soc 101. Society-environment relations, including environmental attitudes and behavior; the environmental movement and environmental politics and policy-making.


343 [S,D] Sociology of Professions and Occupations 3 Prereq Soc 101. Social organization of work in America including historical and contemporary trends, bureaucracy, gender/racial inequality, technological affects, work/family relations.


346 [S,D] Sociology of Education 3 Prereq Soc 101 or 102. Examination of how educational institutions are influenced by other social forces, how school practices affect individual outcomes and how race/class/gender shape educational opportunity.


351 [S,D] The Family 3 Prereq Psych 105 or Soc 101. Family system and its interaction patterns; family life cycle from marriage through death; marital relations, divorce, sexuality, parenting crisis, abuse.

352 Sociology of Emotions 3 Prereq Psych 105 or Soc 101. Examination of emotions by surveying current theory and research; investigate emotions such as shame, guilt, empathy, jealousy, envy, and anger.

356 Sociology of Aging and the Life Course 3 Aging as a lifelong process; behavior, personality competencies, social relations changes over the life course; historical, social structural, demographics, contextual influences. Cooperative course taught jointly by WSU and UI (Soc 431).


361 [M] Criminology 3 Prereq Soc 101. Crime measurement, the correlates of crime, and specific types of crime such as white-collar and drug crime.


363 The Social Organization of Hate Crimes 3 Prereq Soc 101. Definition measurement, social context, and social regulation of hate crimes as a social problem; emphasizing their production and social organization.

364 [M] Law and Society 3 Prereq Crm J 101 or Soc 101. Various points of intersection of legal and social systems; special attention given to historical development.


368 Sociological Theories of Addictive Behavior 3 Prereq Soc 101. Alcohol use and abuse in the context of other legal and illegal substances focusing on theories and drug policies.

372 [M] The Sociology of Film 3 The social, economic, and political factors that influence film production and the impact of films on American culture.

373 [S,D] Media, Culture and Society 3 The production of popular culture by media organizations and its effects on society.

375 Aspects of Sustainable Development 3 Prereq junior standing. Same as EconS 326.

383 [S,D] Sociology of Sexuality 3 Prereq Soc 101, Soc 102, or W St 200. Social construction of sexuality, sexual behavior, and sexuality as a part of social inequalities and institutions.


389 (380) [S,D] Gender and Work 3 Same as W St 390.

391 Special Topics in Sociology V 1-3 May be repeated for credit; cumulative maximum 6 hours.

392 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.

393 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.

397 Special Topics in Sociology: Study Abroad V 1-15 May be repeated for credit. S, F grading.

398 Special Topics in Sociology: Study Abroad V 1-15 May be repeated for credit. S, F grading.

415 [T] Globalization 3 Prereq Soc 101; completion of one Tier I and three Tier II courses. Structural foundations of global social change; theories of intersocietal interactions and interdependencies.

418 Human Issues in International Development 3 Same as Anth 418.

421 Quantitative Techniques in Sociology II 3 Probability theory, sampling distributions, random variables, matrix approaches to statistical techniques, calculus for statistics and computer applications.


430 [T] Society and Technology 3 Prereq completion of one Tier I and three Tier II courses. Role of technology in social evolution; social impacts and shaping of technology.

433 [T] Urbanization and Community Organization 3 Prereq Soc 101; one Tier I course; three Tier II courses. Organization, function, change, development, and decline of communities; applications emphasizing rural or urban settings.

442 [T] Political Sociology 3 Prereq Soc 101; one Tier I course; three Tier II courses. Sociological analysis of political institutions and power structures; social and cultural basis of political behavior.

446 Medical Sociology 3 Prereq Soc 101. Social factors related to health and illness; organization and change in health care; impacts of health care reform, rising costs, and aging.

455 [T] Beliefs, Norms, and Values 3 Prereq Soc 101; one Tier I course; three Tier II courses. General survey of theory and research on the common meanings - beliefs, norms, values - constructed by societies and held by individuals.


468 Addictive Behavior Across the Demographic Spectrum 3 Prereq Psych 105, Soc 101, or Crm J 101. Overview of social, cultural and historical perspectives on dealing with addictive behavior.

474 [T] Collective Behavior and Social Movements 3 Prereq Soc 101; one Tier I course; three Tier II courses; three 300-400-level Soc or Pol S courses. Processes of collective behavior and social movements in historical and contemporary societies.
523 Qualitative Methods Practicum 3 Prereq graduate standing. Introduction to qualitative research methods as used in social sciences; epistemological underpinnings and empirical techniques.

524 Sociology and Public Policy 3 Sociological theories used to consider the rationale for public policy; development of tools for policy analysis.

525 Practicum in Survey Research 3 Prereq Soc 520. Practical experience in design and implementation of telephone and mail surveys; participation in all aspects of conducting a survey.

530 Demography 3 Population studies; causes, effects, and measurement of changes in fertility, mortality, and migration; population estimation and projection.

531 Human Ecology 3 Ecosystem context of human life; change viewed ecologically; sociological use and misuse of ecological concepts; issues in theory and research.

532 Environmental Sociology 3 Societal-environmental interactions; impacts of human societies on the physical environment; environmental impacts on human behavior and social organization.

535 Technology and Society 3 Prereq graduate standing. Analysis of sociotechnical systems; effects of technology on society; the social shaping of technologies and their environmental impacts.

536 Special Topics in Environmental Sociology 3 V 1-3 May be repeated for credit; cumulative maximum 9 hours. Special topics in environmental sociology.

542 Social Stratification: Class, Race and Gender Inequalities 3 Theoretical and empirical research in both classic stratification literature and recent scholarship on class, race/ethnicity and gender.

545 Sociology of Community 3 Community stability and change: interaction processes; decision making; societal linkages; effects on well-being.

546 Medical Sociology 3 Social influence on the perceptions of health and illness; construction of health professionals; analysis of the health care system and current policy proposals.

553 Social Organization and the Family 3 The family as a social institution; principles of social organization applied to family relationships; macro-level analyses of family structure.

554 Social Psychology of the Family 3 The family as an interacting group; social psychological theories and research applied to family relationships; effects of families on individuals.

555 Sociology of Gender 3 Sociological theory and research on gender and gender inequality in American society.

556 Sociology of Aging and the Life Course 3 Theory and research on the changes individuals undergo over the life course; influences of history, social structure, agency and social relations on lives. Cooperative course taught jointly by WSU and UI (Soc 431).

568 Adolescent Deviance 3 Contemporary sociological theory and research in adolescent deviance; action programs; and emerging issues.

700 Master's Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

Social Welfare and Public Policy Courses

390 Social Welfare History and Policy 3 Current social welfare programs; income maintenance, health services, criminal justice, public housing, child welfare; historical development of social welfare programs.

393 [M] Social Work Methods in Community Organization 3 Social legislation creation and impact on delivery services by professional/paraprofessional social workers.

395 Child Welfare 3 Social work practice in child welfare; adoption, foster homes, child protection, group homes, day care, children's institutions, dependency, traditional and non-traditional family.

396 Social Work with the Aging 3 The aging process; accessing community resources for the elderly; applying social work methods to the elderly and their family systems. Cooperative course taught by WSU, open to UI students (Soc 396).
The Department of Speech and Hearing Sciences offers courses of study leading to the degrees of Bachelor of Arts in Speech and Hearing Sciences and Master of Arts in Speech and Hearing Sciences. Academic course work and clinical practicum offerings prepare professional personnel to meet the diagnostic and therapy needs of individuals of all ages evidencing a wide variety of speech, language, hearing and learning problems.

Students are prepared as speech-language pathologists to provide direct and consultative services in education and medical settings. The course of study emphasizes the physiological, neurological, psychological, and behavioral processes of normal development, the fundamental communication process, and the disorders of communication. The analytic and independent application of course content to the clinical process is encouraged.

The Speech and Hearing Clinic is the Pullman campus training facility for the Speech and Hearing Sciences Department. Speech, language, and audiology services are available through the Speech and Hearing Clinic.

The graduate program, located in the Health Sciences Building at the Riverpoint Campus of Washington State University Spokane, is a cooperative venture, combining faculty and resources of Washington State University and Eastern Washington University to form University Programs in Communication Disorders (UPCD). WSU students enroll through and receive their degrees from Washington State University. The Hearing and Speech Clinic is the Spokane campus training facility for the University Programs in Communication Disorders. Opportunities to work with special populations and in medical settings are readily available in the Spokane area. A capstone internship program provides intensive practical experience in many clinical and educational settings.

The graduate program in speech-language pathology is accredited nationally by the Council on Academic Accreditation of the American Speech-Language-Hearing Association and recognized at the state level by the Washington State Board of Education. State and national clinical and educational certifications require a master's degree. Bachelor's-level training in speech and hearing sciences is considered pre-professional.

Learning Outcomes

Learning outcomes for students in Speech & Hearing Sciences reflect the Knowledge and Skills Assessment required by the American Speech-Language-Hearing Association. Students earning a master's degree with an emphasis in speech-language pathology will be able to demonstrate:

1. knowledge of the basic human communication and swallowing processes;
2. knowledge of the nature of speech, language, hearing, swallowing and communication disorders and differences;
3. knowledge of the principles and methods of prevention, assessment, and intervention for people with communication and swallowing disorders;
4. skills in evaluation, screening and prevention procedures;
5. skills in developing, setting, and monitoring appropriate intervention plans with measurable and achievable goals that meet clients' patients' needs; implementing intervention plans; and
6. knowledge of the principles and practices of research, including experimental design, statistical methods, and clinical applications.

Preparation for Graduate Study

Students with undergraduate majors in child development, the humanities, education, the social and behavioral sciences, as well as those with undergraduate majors in speech and hearing sciences, may be accepted for graduate study in this department. Those with majors in areas other than speech & hearing sciences may be required to take undergraduate prerequisite coursework prior to taking graduate coursework.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

SPEECH AND HEARING SCIENCES REQUIREMENTS (124 HOURS)

At least 45 of the total hours required for the bachelor's degree in this program must be in 300-400-level courses. Successful completion of SHS 475 and 478 fulfills the university requirement of two writing in the major courses, designated [M].

Speech and Hearing Sciences majors are required to satisfactorily complete clinic apprenticeship and clinic practice (SHS 461 and 475) to fulfill degree requirements. Students must present evidence of good character and fitness to participate in clinic.

A background investigation conducted by the Washington State Patrol is required to establish good character and fitness requisite to participation in clinic. Majors must also have a tuberculin (TB) skin test prior to participating in clinic apprenticeship and clinic practice. The test is available at Health and Wellness Services.

The Speech and Hearing Sciences Department provides preparation for professional (graduate) training as a speech-language pathologist or audiologist. This course sequence is based on fall enrollment. GERs must be completed in College of Liberal Arts prior to the fifth semester.

First Year

First Term

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<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
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<td>Biological Sciences [B] (GER)</td>
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<tr>
<td>Communication Proficiency [C,W] (GER)</td>
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<td>Engl 101 [W] (GER)</td>
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Second Term

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<td>Biological Sciences [B] (GER)</td>
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<td>Biological Sciences [B] (GER)</td>
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<td>SHS 205</td>
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Second Year

Second Term

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<td>SHS 202</td>
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<td>SHS Elective2</td>
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<td>Stat 212 [N] (GER)</td>
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Complete Writing Portfolio

Third Year

First Term

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<tbody>
<tr>
<td>SHS 371</td>
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<tr>
<td>SHS 372</td>
<td>3</td>
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<td>SHS 373 or 375</td>
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<td>SHS 377</td>
<td>3</td>
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<tr>
<td>SHS Elective2</td>
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Second Term

<table>
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<tr>
<th>Course</th>
<th>Hours</th>
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<tr>
<td>SHS 376</td>
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<tr>
<td>SHS 378</td>
<td>4</td>
</tr>
<tr>
<td>SHS 461 or Tier III [T] (GER)</td>
<td>2 or 3</td>
</tr>
<tr>
<td>SHS 472</td>
<td>3</td>
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<tr>
<td>SHS 478 [M]</td>
<td>3</td>
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Fourth Year

First Term

- SHS 471 3
- SHS 475 [M] or Rotating Core Elective 3
- SHS 477 3
- SHS 479 3
- SHS 482 [M] 3

Second Term

- SHS 461 or Tier III [T] (GER) 2 or 3
- SHS 473 3
- SHS 475 3
- SHS 479 3
- SHS 480 1

Footnotes
1 SHS 201 and 202 highly recommended at Spokane campus.
2 Selected GERs may be used to fulfill SHS electives.

Highly recommended electives include: Acctg 230, 231; Anth 405, 450; Biol; Chem; Cpt S Engl 255, 256, 402; For Lang; H D; MgtOp 101, 301; Physics; Psych 311, 312, 321, 333, 361, 363, 372, 384, 390, 412, 464, 490; SHS 489, 490; Soc 356; Sp Ed 301; Stat 212; T & L 330, 333, 335; W St 220; and others in consultation with your advisor.
3 SHS 475 at Pullman campus; Rotating Core Elective at Spokane campus.

Speech and Hearing Sciences Courses

SHS

118 Accent Reduction for International Students 2 May be repeated for credit; cumulative maximum 4 hours. Instruction in production of the sounds and pattern of general American speech. S, F grading.

201 American Sign Language I 4

Instruction and practical training in sign language for communication with persons who are deaf; deaf culture; beginning conversation skills.

202 American Sign Language II 4 Prereq SHS 201. Sign language systems; vocabulary and skill development in signing and interpreting signs; intermediate conversation skills.

205 Introduction to Speech-Language Pathology and Audiology 3 Overview of deficits of speech, language, and hearing and the role of speech-language pathologist and the audiologist.

371 Language Development 3 Normal development of the cognitive, linguistic, and pragmatic components of language; introduction to language disorders in children.

372 Hearing and Hearing Disorders 3 Acoustic and psychophysiological aspects of normal hearing and speech perception, and the nature and consequences of hearing disorders.

373 Clinical Phonetics 2 Analysis and transcription of speech sounds as it relates to the remediating of unintelligible or disordered speech.

375 Phonetics 3 Description and classification of American English speech sounds; practice using the International Phonetic Alphabet to transcribe normal and disordered speech sounds.

376 Speech Sound Disorders 3 Clinical phonetics and transcription; evaluation and treatment of articulatory disorders; delayed phonological acquisition; dysarthria; and dyspraxia.

377 Anatomy and Physiology of the Speech Production 3

Anatomical and physiological basis of speech production and the pathologies and aberrations that require the services of a communication disorders specialist.

378 Speech and Hearing Sciences 3 Basis of acoustics, acoustic phonetics, psychoacoustics, and speech perception, and instrumentation for measurement of related phenomena.

450 Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Study of specialized topics in speech and hearing sciences.

489 [T,D] Disability and Society 3 Prereq completion of one Tier I and three Tier II courses. Perceptions and stereotypes of disability related to theories of marginality and stigmatization; images in films, media, and literature.

451 Neurogenic Communication Disorders 3

Introduction to the etiology, assessment and intervention of communication disorders associated with neurological disorders.

460 Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Study of specialized topics in speech and hearing sciences.

461 Clinical Apprenticeship in Speech-Language Pathology and Audiology 2 (1-3) Pre-practicum preparation; observation of and assisting in therapy; state laws; clinical methods.

471 Speech-Language Pathology and Audiology in Schools 3 Therapy methods and procedures in speech-language pathology and audiology; state/federal laws affecting public school therapy.


473 [M] Language and Literacy 3 Diagnosis and remediation of language and learning disabilities in individuals manifesting disorders in understanding or using spoken/written language.

475 [M] Clinical Practice 3 (0-9) May be repeated for credit; cumulative maximum 9 hours. Prereq speech and hearing major, SHS 461; 2.4 cum GPA; C+ in SHS 475 required for repeat credit; by interview only. Practicum in diagnosis and therapy for speech/language and hearing disorders.

477 Aural Rehabilitation 3 Theories and methods in aural rehabilitation for persons who are hearing-impaired; amplification; educational audiology; counseling techniques.

478 Language Impairment 3 Prereq SHS 371. Assessment and habilitation for the preschool and elementary-age child with language disorders.

479 Neuroanatomy 3 Neuroanatomical and neurophysiological bases of speech production and audition; neuropathologies of speech, language, and audition.

480 Special Topics in Speech and Hearing Sciences 1 May be repeated for credit; cumulative maximum 9 hours. Study of specialized topics in speech and hearing sciences.

482 [M] Assessment of Speech and Language 3 Prereq SHS 376 or c//, 475 or c//, 478. Principles, techniques, and materials involved in exploring the nature of speech and language disorders; planning programs of therapy.

490 Special Topics in Speech and Hearing Sciences V 1-3 Study of specialized topics in speech and hearing sciences. May be repeated for credit; cumulative maximum 9 hours.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Speech and Hearing Sciences

Minors

Disability Studies

The minor in disability studies requires 18 credit hours, with 9 hours in 300-400-level course work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Core courses include CES 302 or Soc 340; SHS 250; and SHS 489. Students select additional courses within or across two designated tracks of Culture and Society—Am St 216, Arch 202, CES 101, 260, 302, 440, Com 471/CAC 404, H D 350, SHS 201, 202, Soc 102, 331, 360, 373, 455, 474, W St 200, W St /CES/Soc 300—and Science and Rehabilitation—ColPsy 478, EconS 455 FSHN 405, MvSt 484, PharP 250, Phil 365, SHS 473, Sp Ed 301, 409, T & L 330.

Speech and Hearing Sciences

A minor in speech and hearing sciences requires a minimum of 16 hours including SHS 205, 371, 372; 9 hours must be 300-400-level courses excluding SHS 461 and 475, and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

Description of Courses

Disability Studies Courses

DisSt

250 [S,D] Perspectives on Disability 3 Historical, international, socioeconomic, ethical and personal perspectives on disability; individual choices, societal values, and social responsibility.

489 [T,D] Disability and Society 3 Prereq completion of one Tier I and three Tier II courses. Perceptions and stereotypes of disability related to theories of marginality and stigmatization; images in films, media, and literature.

451 Neurogenic Communication Disorders 3 Introduction to the etiology, assessment and intervention of communication disorders associated with neurological disorders.

460 Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Study of specialized topics in speech and hearing sciences.

461 Clinical Apprenticeship in Speech-Language Pathology and Audiology 2 (1-3) Pre-practicum preparation; observation of and assisting in therapy; state laws; clinical methods.

471 Speech-Language Pathology and Audiology in Schools 3 Therapy methods and procedures in speech-language pathology and audiology; state/federal laws affecting public school therapy.


473 [M] Language and Literacy 3 Diagnosis and remediation of language and learning disabilities in individuals manifesting disorders in understanding or using spoken/written language.

475 [M] Clinical Practice 3 (0-9) May be repeated for credit; cumulative maximum 9 hours. Prereq speech and hearing major, SHS 461; 2.4 cum GPA; C+ in SHS 475 required for repeat credit; by interview only. Practicum in diagnosis and therapy for speech/language and hearing disorders.

477 Aural Rehabilitation 3 Theories and methods in aural rehabilitation for persons who are hearing-impaired; amplification; educational audiology; counseling techniques.

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480 Special Topics in Speech and Hearing Sciences 1 May be repeated for credit; cumulative maximum 9 hours. Study of specialized topics in speech and hearing sciences.

482 [M] Assessment of Speech and Language 3 Prereq SHS 376 or c//, 475 or c//, 478. Principles, techniques, and materials involved in exploring the nature of speech and language disorders; planning programs of therapy.

490 Special Topics in Speech and Hearing Sciences V 1-3 Study of specialized topics in speech and hearing sciences. May be repeated for credit; cumulative maximum 9 hours.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.
501 Research Methods 3 Philosophy of research, types of literature; experimental and descriptive designs; application of statistics; analysis of statistical results.

503 Research Methods II 2 Experimental and descriptive designs, application of statistics, analysis of statistical results. SHS graduate student; all undergraduate prerequisite courses completed.

540 Special Topics in Speech and Hearing Sciences V 1-3 Advanced study of specialized topics in speech and hearing sciences. May be repeated for credit; cumulative maximum 9 hours. SHS graduate student; all undergraduate prerequisite courses completed.

542 Infant and Toddler Communication and Language 3 Typical development of communication and language in the birth to 5 year-old population; impairments affecting development; disorders; assessment; intervention. SHS graduate student; all undergraduate prerequisite courses completed.

543 School Age and Adolescent Language 3 Language development in typically developing and language impaired school age and adolescent students; disorder types; implications for assessment and intervention. SHS graduate student; all undergraduate prerequisite courses completed.

545 Special Topics in Speech and Hearing Sciences V 1-3 Study of specialized topics in speech and hearing sciences. May be repeated for credit; cumulative maximum 9 hours. SHS graduate student; all undergraduate prerequisite courses completed.

565 Augmentative Communication 3 Augmentative communication theory; implementation, training strategies, ongoing adjustments, and evaluating effectiveness. SHS graduate student; all undergraduate prerequisite courses completed.

566 Off-Campus Practicum Public School Setting V 2 (0-6) to 6 (0-18) Prereq SHS 575; by interview only. Advanced clinical practice in a public school setting; evaluation and treatment of speech, language, and hearing disorders. May be repeated for credit; cumulative maximum 15 hours. SHS graduate student; all undergraduate prerequisite courses completed.

567 Issues in Public School Service Delivery 3 Clinical operations, policies, procedures, including legal, ethical, and professional considerations in the schools. SHS graduate student; all undergraduate prerequisite courses completed.

570 Advanced Internship in Speech-Language Pathology V 1-18 May be repeated for credit. Prereq SHS 566, 575, by interview only. Advanced practicum in diagnosis and therapy for communication disorders. SHS graduate student; all undergraduate prerequisite courses completed. S, F grading.

571 Seminar in Speech Pathology 3 May be repeated for credit; cumulative maximum 9 hours. Prereq SHS graduate student; all undergraduate prerequisite courses completed. Exploration of ideas derived from current writings and research in speech pathology and audiology.

574 Neuropathologies of Language 3 Advanced study of language disorders resulting from brain insult after birth; emphasis on aphasia and related disorders. SHS graduate student; all undergraduate prerequisite courses completed.

575 Advanced Clinical Practice V 2 (0-6) to 6 (0-18) Prereq by interview only. Advanced clinical practice in evaluation and treatment of speech, language, and hearing disorders. May be repeated for credit; cumulative maximum 15 hours. SHS graduate student; all undergraduate prerequisite courses completed.

576 Voice Disorders 3 Functional and organic voice disorders resulting from various etiologies. SHS graduate student; all undergraduate prerequisite courses completed.

590 Special Topics in Speech and Hearing Sciences V 1-3 Advanced study of specialized topics in speech and hearing sciences. May be repeated for credit; cumulative maximum 9 hours. SHS graduate student; all undergraduate prerequisite courses completed.

592 Clinical Perspectives 3 Theory and clinical experience designed to assist students in integrating course work into a clinical perspective. SHS graduate student; all undergraduate prerequisite courses completed.

597 Speech-Language Pathology in the Medical Setting 2 Report writing and charting, collaborating with the medical team, establishing prognosis and assessing efficacy of treatment, and third-party reimbursement. SHS graduate student; all undergraduate prerequisite courses completed.

608 Phonological Acquisition and Behavior 3 Current literature in articulatory development and deviancy; diagnosis and therapy. SHS graduate student; all undergraduate prerequisite courses completed.

610 Special Projects or Independent Study Variable credit S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

Department of Statistics

www.stat.wsu.edu
Neil 413
509-335-8645


Statistics is the science that deals with the collection, analysis, display, and interpretation of data. Statistics is an interdisciplinary, intercollegiate department that emphasizes the connection of statistics to its many areas of application, as well as the traditional connection to mathematics. The Department offers courses that provide training in the application of statistical methods to the biological, physical, and social sciences, the theory of statistical methods, probability, and statistical computing. Opportunities for individuals trained in statistics abound in business, industry, government and academia. Faculty in the Department collaborate with researchers throughout the entire university community on statistical questions that arise in the researcher’s substantive discipline. In addition,
faculties carry out active research programs in the discipline of statistics itself.

The Department of Statistics currently offers an M.S. degree with applied and theoretical options and a graduate minor. Students enrolled in a Ph.D. program in Agricultural Economics, Economics, Management Operations, or Math may be enrolled in the M.S. in Statistics/Ph.D. option. They can simultaneously pursue a Ph.D. in their primary discipline and an M.S. in Statistics. For specific requirements for these degrees, please contact the Statistics Office.

Preparation for Graduate Study

As preparation for work toward an advanced degree in statistics, a student should have completed one or more courses in statistical methods, mathematics through multivariable calculus and linear algebra, and have at least a three credit computer programming course. Advanced calculus and a second course in linear algebra are also strongly recommended. More important than the above specific courses is an indication of the student’s interest and ability in statistics.

Minors

Statistics

The minor in statistics requires 16 credit hours which must be approved by the Department of Statistics. Only courses which do not have significant overlap in statistical content will be approved as counting toward the minor. At least 9 of the 16 hours must be from courses carrying a Stat prefix. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Students are encouraged to have the courses they wish to count toward a Stat minor approved by the Program as early in their studies as possible.

Description of Courses

Statistics Courses

Stat

205 [N] Statistical Thinking 3 Prereq Math 103 or intermediate math placement score of 13. Scientific explanation; correlations and causality; presenting statistical evidence; graphical and numerical methods; chance and gambling; the bell-shaped distribution.

212 [N] Introduction to Statistical Methods 4 (3-3) Prereq Math 103 or intermediate math placement score of 13. Interpretation and application of statistical methods.


370 Introductory Statistics for Engineers 3 Prereq Math 172. Probability axioms, probability models, random variables, expectation, confidence intervals, hypothesis testing, analysis of variance, control charts. Credit not granted for both Stat 360 and 370.


391 Advanced SAS Programming 1 Prereq Stat 390 or c/. Data set rearrangements, macro, report writing and effective use of SAS manuals, documentation and sample program library. S, F grading.

392 SAS Special Topics 1 May be repeated for credit. Prereq Stat 390 or c/. Special features of the SAS system including, but not limited to: SAS/GRAPH, SAS/ASSIST, SAS/IML, SAS/ACCESS, SAS/FSP, advanced macros, complex inputs. S, F grading.

401 Statistics Analysis 3 Prereq Stat 212, 360 or 412. Concepts and methods of statistical research including multiple regression, contingency tables and chi-square, experimental design, analysis of variance, multiple comparisons, and analysis of covariance. Cooperative course taught by UI (Stat 401), open to WSU students.

404 Special Topics V 1-4 Prereq Stat 212, 360, 412, or MgtOp 215. Special topics in statistics. Cooperative course taught jointly by WSU and UI (Stat 404).

410 Topics in Probability and Statistics 3 Prereq one 3 hour statistics course. Current topics in probability and statistics of mutual interest to faculty and students. Credit not granted for both Stat 410 and 510.

412 Biometry 3 Prereq Stat 212, Math 140, 171, 202, or graduate standing. Principles and methods of statistical analysis as applied to biological experimentation. Cooperative course taught by WSU, open to UI students (Stat 412).

420 Statistical Analysis of Qualitative Data 3 Prereq Math 140, 171, 201, 202, or 220; and one 3 hour statistics course. Binomial, Poisson, multinomial distribution; contingency tables, Fisher’s tests, log-linear models; ordinal data; applications in biology, business, psychology, an sociology. Cooperative course taught by WSU, open to UI students (Stat 420).

422 Sampling Methods 2 Prereq Stat 212 or 360. Simple and stratified random sampling; systematic sampling; cluster sampling; double sampling, area sampling. Cooperative course taught jointly by WSU and UI (Stat 422).

423 Statistical Methods for Engineers and Scientists 3 Prereq Stat 360 or one 3 hour statistics course. Hypothesis testing; linear, multilinear, and nonlinear regression; analysis of variance for designed experiments; quality control; statistical computing. Credit not normally granted for both Stat 423 and 430.

428 Geostatistics 3 Prereq Stat 360. Applications of random variables and probability in geologic and engineering studies; regression, regionalized variables, spatial correlation. Cooperative course taught by UI (Stat 428), open to WSU students.

430 Statistical Methods in Engineering 3 Prereq Math 172; 220. Random variables, sampling, hypothesis testing; linear, multilinear, and nonlinear regression; analysis of variance for designed experiments; statistical computing. Credit not normally granted for both Math 430 and 442.

443 Applied Probability 3 Prereq Math 172; 220. Axioms of probability theory; random variables; expectation; generating function; law of large numbers; central limit theorem; Markov chains. Cooperative course taught jointly by WSU and UI (Math 451).

446 Six Sigma Innovation 3 Six Sigma is a highly structured strategy for acquiring, assessing, and applying customer, competitor, and enterprise intelligence for the purposes of product, system or enterprise innovation and design. It has two major thrusts, one that is directed toward significant innovation or improvement of an existing product, process or service that uses an approach called DMAIC (Define - Measure - Analyze - Improve - Control) and a second dedicated to design of new processes, products or services. This course focuses on the innovation aspects of Six Sigma. Cooperative course taught by UI (Stat 446); open to WSU students.

456 Introduction to Statistical Theory 3 Prereq Stat 430 or 443. Sampling distributions; hypothesis testing and estimation; maximum likelihood; likelihood ratio tests; theory of least squares; nonparametrics. Credit not granted for both Stat 456 and 556. Cooperative course taught jointly by WSU and UI (Math 452).

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

504 Special Topics 3 Prereq Stat 456. Cooperative course taught by UI (Stat 504), open to WSU students.

507 Experimental Design 3 Prereq Stat 512. Methods of constructing and analyzing designs for experimental investigations; analysis of designs with unequal subclass numbers; concepts of blocking randomization and replication; confounding in factorial experiments; incomplete block designs; response surface methodology. Cooperative course taught by UI (Stat 507), open to WSU students.

510 Topics in Probability and Statistics 3 Prereq one 3 hour statistics course. Graduate-level counterpart of Stat 410; additional requirements. Credit not granted for both Stat 410 and 510.

511 Statistics for Economists 4 Prereq college calculus and matrix algebra. Same as Econ 510.
512 Analysis of Variance of Designed Experiments 3 (2-2) Prereq Math 360 or Stat 412. Principles of experimental design and analysis and interpretation of data.

513 Advanced Topics in Mathematical and Quantitative Methods V 1-6 May be repeated for credit; cumulative maximum 12 hours. Prereq EconS 500; EconS 501; EconS 511. Same as EconS 590.

514 Nonparametric Statistics 3 Prereq Stat 512. Conceptual development of basic nonparametric tests including their power and efficiency. Cooperative course taught by UI (Stat 514), open to WSU students.

516 Time Series 3 Prereq MgtOp 515 or Stat 443. Same as MgtOp 516. Cooperative course taught by WSU, open to UI students (Stat 519).


519 Applied Multivariate Analysis 3 Prereq MgtOp 591 or Stat 443. Same as MgtOp 519. Cooperative course taught jointly by WSU and UI (Stat 519).

520 Statistical Analysis of Qualitative Data 3 Prereq Math 140, 171, 201, 202, or 220; and one 3 hour statistics course. Graduate-level counterpart of Stat 420; additional requirements. Credit not granted for both Stat 420 and 520. Cooperative course taught by WSU, open to UI students (Stat 520).

522 Biostatistics and Statistical Epidemiology 3 Prereq Math 171 or 220; Stat 412. Rigorous approach to biostatistical and epidemiological methods including relative risk, odds ratio, cross-over designs, survival analysis and generalized linear models. Cooperative course taught by WSU; open to UI students (Stat 522).

523 Statistical Methods for Engineers and Scientists 3 Prereq Stat 360 or one 3 hour statistics course. Graduate-level counterpart of Stat 423; additional requirements. Credit not granted for both Stat 423 and 523.

530 Applied Linear Models 3 (2-2) Prereq Stat 360 or 443. The design and analysis of experiments by linear models.

531 Econometrics I 3 Prereq EconS 510. Same as EconS 511. Cooperative course taught by WSU, open to UI students (Stat 531).

533 Theory of Linear Models 3 Prereq Math 420, Stat 430, or 456. Theoretical basis of linear regression and analysis of variance models; a unified approach based upon the generalized inverse. Cooperative course taught jointly by WSU and UI (Stat 531).

534 Analyses of Mixed Linear Models 3 Prereq Stat 430. Theory and applications of generalized linear mixed models, nonlinear mixed effects models and meta-analysis. Cooperative course taught by WSU; open to UI students (Stat 534).

535 Regression Analysis 3 Prereq Stat 430 or 456. Conceptual development of regression; estimation, prediction, tests of hypotheses, variable selection, diagnostics, model validation, correlation, and nonlinear regression. Cooperative course taught jointly by WSU and UI (Stat 550).

536 Statistical Computing 3 (2-3) Prereq (Stat 513 and 503), Stat 523, or by instructor's permission. Generation of random variables, Monte Carlo simulation, bootstrap and jackknife methods, EM algorithm, Markov chain Monte Carlo methods. Cooperative course taught jointly by WSU and UI (Stat 565).


544 Applied Stochastic Processes 3 Prereq Stat 430 or 443. Poisson and Markov processes; queuing theory; auto-covariance; stationarity; power spectra; harmonic analysis; linear mean-square predictions. Cooperative course taught jointly by WSU and UI (Stat 544).

548 Statistical Theory I 3 Prereq Math 273; Stat 430 or 443. Probability spaces, combinatorics, multidimensional random variables, characteristic function, special distributions, limit theorems, stochastic processes, order statistics. Cooperative course taught by WSU, open to UI students (Stat 548).

549 Statistical Theory II 3 Prereq Stat 548. Continuation of Stat 548. Statistical inferences; estimation and testing hypotheses; regression analysis; sequential analysis and nonparametric methods. Cooperative course taught by WSU, open to UI students (Stat 549).

552 Biostatistics and Statistical Epidemiology 3 Prereq Math 171 or 220; Stat 412. Rigorous approach to biostatistical and epidemiological methods including relative risk, odds ratio, cross-over designs, survival analysis and generalized linear models. Cooperative course taught by WSU; open to UI students (Stat 552).

553 Econometrics III 3 Prereq EconS 502; EconS 503; EconS 512. Same as EconS 513.

554 Econometrics IV 3 Prereq EconS 502; EconS 503; EconS 512. Same as EconS 514.

555 Statistical Ecology 3 Prereq Stat 443. Ecological stochastic models, population dynamics and genetics, sampling, spatial analysis, discrete/continuous distributions, birth-death processes, diffusion processes. Cooperative course taught by UI (Stat and WLF 555), open to WSU students.

556 Introduction to Statistical Theory 3 Prereq Stat 430 or 443; graduate standing. Graduate-level counterpart of Stat 456; additional requirements. Credit not granted for both Stat 456 and 556.

565 Analyzing Microarray and Other Genomic Data 3 Prereq Math 220; Stat 412 or 423. Statistical issues from pre-processing (transforming, normalizing) and analyzing genomic data (differential expression, pattern discovery and predictions). Cooperative course taught by WSU; open to UI students (Stat 560).

572 Quality Control 3 Prereq Stat 360 or 443. Simple quality assurance tools; process monitoring; Shewart control charts; process characterization and capability; sampling inspection; factorial experiments.

573 Reliability 3 Prereq Stat 360, 430, or 443. Probabilistic modeling and inference; product-limit estimator; probability plotting; maximum likelihood estimation with censored data; regression models for accelerated life testing. Cooperative course taught jointly by WSU and UI (Stat 571).


590 Statistical Consulting Practicum V 1 or 2 May be repeated for credit; cumulative maximum 6 hours. Prereq Stat 512; Stat 530. Theory and practice of statistical consulting, participation in consulting session. S, F grading.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

Department of Teaching and Learning

education.wsu.edu/tl
Cleveland 321
509-335-6842


Courses of study (availability differs across campuses) are offered for elementary school teaching (Bachelor of Arts in Education, Master in Teaching) and secondary school teaching (degree from major plus certification, Master in Teaching). Additional endorsements are offered in special education, English Language Learners/bilingual education, and reading. Graduate programs include Master of Arts in Education, Education Masters, Doctor of Education, and Doctor of Philosophy. Doctoral specializations are available in these areas: Curriculum and Instruction, Cultural Studies and Social Thought in Education, Language and Literacy Education, Math Education, and Special Education.
Department of Teaching & Learning faculty contribute to the theory and practice of the broad field of education, and dedicate themselves to understanding and respecting learners in diverse cultural contexts. They facilitate engaged learning and ethical leadership in schools and clinical settings. They seek collaboration with diverse constituencies, recognizing their local and global responsibilities to communities, environments, and future generations. They seek the following learning outcomes for students in teacher preparation: graduates will (1) use content and pedagogical knowledge to inform their teaching, (2) develop relevant, rigorous, and developmentally appropriate curricula, (3) modify curriculum and instruction based on the individual needs of their students, (4) use assessment of their students’ learning and their own teaching to inform future planning and teaching, (5) attend to the social and civic development of their students, and (6) work respectfully and collaboratively with colleagues to ensure quality instructional programs and stewardship of public schools. At the master's level, graduates will (1) locate, analyze, and synthesize research, literature, and apply that synthesis to problems of practice, (2) effectively communicate scholarly work through written, oral, and/or alternate formats, (3) skillfully inquire into areas of program-related interest, (4) develop scholarly habits in curiosity, inquiry, skepticism, and data-based decision making. Doctoral students will achieve master's level outcomes and these as well: (1) conduct and disseminate original scholarship that demonstrates acquisition and application of new knowledge and theory, (2) become emerging experts in their area of study.

The Washington State University annual report on teacher preparation, required under Title II, Section 207(i)(2) of the Higher Education Act, is available upon request. Visit our web site at education.wsu.edu/academics/accreditation/titleii.

TEACHER CERTIFICATION

The Department of Teaching and Learning prepares individuals to teach elementary education, early childhood education, and various single subjects at the secondary education level. The teacher certificate, awarded by the State Superintendent of Public Instruction upon recommendation by Washington State University, designates the subject area in which the certificate holder is qualified to teach. Teacher preparation is offered at the Pullman, Spokane, Tri-Cities, and Vancouver campuses, and selected distant sites, although not all programs are available at each site. The teacher certificate will be awarded if the following provisions are met:

1. The candidate provides evidence of good character and personal fitness to teach. Fingerprinting is required. A background investigation is conducted by the Washington State Patrol, the FBI, and Office of Professional Practices.
2. The degree is awarded and the professional preparation program is satisfactorily completed following these guidelines:
   a. All course work is taken for a letter grade where offered. Pass, fail grading is not accepted except for field experience courses.
   b. The candidate has earned no grade lower than C (2.0) for professional course work, and course work in the endorsements. The C minimum grade also applies to general education, math, psychology, science, and social studies requirements in the elementary and early childhood programs.
   c. The cumulative WSU GPA and the GPA computed separately for professional course work and each endorsement is not less than 2.5.
   d. The student has completed all work within five years of admission to teacher preparation. Those not finishing within this time limit will be subject to all new program requirements.
3. The candidate has achieved a passing score on the state-wide examinations in basic skills (WEST-B), content (WEST-E), on the pedagogy assessment, and on all cross-campus assessments.
4. The candidate has made application and paid licensing fees.
5. The candidate has met the Professional Dispositions Assessment standards.

Transfer students entering an undergraduate or post baccalaureate certificate program must complete at least fifty percent of the professional education core, and, if preparing to teach at the elementary level, fifty percent of the elementary endorsement course work, plus student teaching at WSU. Transfer students and post baccalaureate applicants should consult with an advisor regarding equivalency and transferability of course work.

Opportunities are provided for teacher certificate candidates to gain meaningful experiences by working directly with and observing children in school settings. It is WSU's intent to place only those individuals in P-12 classrooms who are able to demonstrate a positive impact on student learning, and to insure that they possess those characteristics desirable for working with children and young people. The College of Education therefore reserves the right to refuse placement of any student in a field experience, or to terminate an individual's placement if in the professional judgment of the faculty, the hosting school, or coordinating field personnel there is cause for concern about the fitness of that individual to work with children in a classroom setting. The student teaching field placement is arranged by the faculty with school districts contracted to provide experiences for WSU students. Students do not make their own student teaching placements. Student teaching must be completed at an approved WSU site in the state of Washington or internationally with supervision by an approved WSU provider.

Certificate Renewal, Continuing Certificate, Add-On Endorsements
www.education.wsu.edu/studentservices

Information is available upon request from the Certification Coordinator, Office of Student Services, College of Education, PO Box 642152, Pullman, WA 99164-2152, 509-335-4855 or edstudents@wsu.edu.

Professional Certificate

The Teacher Professional Certificate Program is offered at the Spokane, Tri-Cities, and Vancouver campuses as well as in other partnership sites across the state. Information is available upon request from the Center for Collaboration with Schools and Communities, College of Education, PO Box 642114, Pullman, WA 99164-2114, 509-335-1988.

WSU PULLMAN TEACHER CERTIFICATION

Inquiries and requests for program information should be addressed to Office of Student Services, College of Education, PO Box 642152, Pullman WA 99164-2152, 509-335-4855 or beateacher@wsu.edu or visit our website at education.wsu.edu/studentservices.

WSU Pullman seeks to prepare the best possible teachers and therefore seeks highly qualified individuals. Admission to, or continued enrollment in, the teacher preparation program may be denied a candidate on the basis of review by the faculty. To prepare in elementary education the candidate shall satisfy degree requirements of the Department of Teaching and Learning. To prepare in early childhood education, the candidate shall satisfy the degree requirements of the Department of Human Development. To prepare in a single subject, the candidate shall complete the baccalaureate degree/teaching option offered through the subject matter department, or in general studies. Single-subject endorsement preparation is available in agriculture, biology, chemistry, earth science, English language arts, world languages (French, German, Russian, and Spanish), health and fitness, history, family and consumer sciences, mathematics, music, physics, and social studies. Add-on endorsements for pre-service teachers are offered in bilingual education, English Language Learners, early childhood education, reading, science, and special education. Candidates holding single-subject endorsements typically will be assigned to teach in grades 5-12 except those endorsed in ESL, bilingual education, world languages, health and fitness, music, reading, or special education who are authorized to teach P-12. Specific course requirements for endorsements are listed under Single Subject Certificate Programs at the end of this section. Endorsement requirements are subject to change by the Professional Educator Standards Board.

Admission to Undergraduate and Post-baccalaureate Teacher Preparation

Applicants who meet the minimum requirements are eligible for consideration, but not assured admission. Enrollment is limited and admission competitive. Admission deadlines are September 30 and February 28 or 29 with admission effective the following term. Candidates must complete formal admission procedures and be admitted to teacher preparation prior to taking any professional education course work beyond 1st L 300, 301, or 317. The following minimum criteria must be met for consideration for admission:

Minimum Criteria

Contact Student Services at 509-335-4855 or beateacher@wsu.edu for up-to-date information.

1. Completion, within the last three years, of 80 hours of supervised work with children 4 years of age or older in a supervised setting.
2. A passing score on the WEST-B, a statewide basic skills test. For information and registration go to education.wsu.edu/studentservices.
3. Completion of at least 30 semester hours of post-secondary course work.
4. Minimum WSU cumulative GPA of 2.50 (transfer student GPA is based on WSU course work).
5. Engl 101, plus one from Engl 201, 301, 302, 402

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or equivalent composition course work with a minimum grade of C.
6. T & L 300, 301 (and T & L 301 not required for H D majors) graded C or better.
7. Elementary and Early Childhood Majors: ComSt 102 or H D 205, or equivalent public speaking course; H D 101, Math 251, and two of the four required GER science courses, all graded C or better.
8. Secondary Majors: Nine hours of course work in the endorsement area. Certified in major department. Contact major department for additional requirements.
9. Personal goal statement.
10. Interview and writing sample.

Field Experiences and Student Teaching

Secondary single subject and early childhood majors must make application for student teaching one full academic year prior to the actual student teaching semester. Elementary majors make application for advanced practicum placement one year prior to the advanced practicum semester. Application forms are distributed at an orientation held each semester. An interview and a passing score on the WEST-E content test is required to begin student teaching. The following courses are required field experiences:

- T & L 300, Introductory Field Experience (1 credit): This first course in the certificate program engages the student in reflection upon the responsibilities and realities of the teaching profession. The student participates and observes daily activities for five days in a P-12 public or private school classroom. Elementary majors enroll in T & L 402, Instructional Practicum I (1 credit); T & L 405, Instructional Practicum II (1 credit); T & L 490, Advanced Practicum (2 credits). Elementary majors enroll concurrently in the required practicum for the appropriate block. T & L 402 and 405 involve participation in a school setting to apply concepts learned in blocked courses. Practicum placement and activities are arranged by the course instructors. T & L 490 is an extended 4-week, full-time practicum in a school setting one semester prior to student teaching. Placement is arranged by the Department of Teaching and Learning. Secondary majors enroll in T & L 317, Secondary Practicum and Seminar (2 credits) and T & L 469, Advanced Field Experience (2 credits). T & L 317 is a three-week, full-time experience completed in May at the end of the sophomore year in a public or private school in the student’s home community. T & L 469 is a 12-week, 6 hrs/week experience in local schools arranged by the Department of Teaching and Learning during the semester prior to student teaching. All practice involve observation, reflection, and practice in classrooms.
- T & L 415, Student Teaching (16 credits), is a semester of full-time teaching in a public school, arranged by university personnel. Agricultural Education, Family Consumer Sciences and Music majors enroll concurrently in T & L 415 and the appropriate student teaching course in the major. Prior to student teaching the certificate candidate will: interview; make application and pay certification fees; satisfactorily complete all course work for the degree and teacher certificate; obtain a passing score on the WEST-E content examination; receive fingerprinting clearance from the Washington State Patrol, the FBI, and the Office of Professional Practices. Student teaching must be completed at an approved WSU site in the state of Washington or internationally with supervision by university personnel.
- T & L 593 Pre-Internship (2 credits) requires successful completion of summer courses, enrollment in concurrent fall coursework and fingerprinting clearance from the Washington State Patrol, the FBI and the Office of Professional Practices.
- T & L 595 Internship (10 credits) requires successful completion of T & L 593 and concurrent coursework, application and payment of certification fee and a passing score on the WEST-E content examination.
- The Pre-Internship and Internship are arranged by university personnel and must be completed at an approved WSU site in the state of Washington with supervision by university personnel.

Master in Teaching (MIT)

The Master in Teaching degree program is a full-time, 15-month field-based program leading to elementary or secondary education teacher certification and a master's degree. Applicants must have a bachelor’s degree from an accredited institution with a minimum 3.0 GPA in the last 60 semester hours of graded course work. Applications for Elementary Education and Secondary Education must be submitted by November 15 for programs beginning the following June. All applicants must have a passing score on the WEST-B and WEST-E to be considered for admission. Information about minimum admission requirements may be obtained from the College of Education Office of Graduate Studies 509-335-9195 or gradstudies@wsu.edu or education.wsu.edu/graduate.


Course of Study for Secondary Education (37-51 hrs): Ed Ad 506, EdPsy 503, 504, T&L 522, T&L 528, T&L 513, SpEd 520, T & L 502, 505, 517, 525, 593, 595, 600, 702. For additional information about certification issues contact Student Services at edstudents@wsu.edu or visit them online at education.wsu.edu/student-services.

Education Master's Degree (Ed.M.)

WSU Pullman also offers an Education Master's degree (Ed.M.) program with endorsements in reading, special education, and/or bilingual/ESL for educators who already have a teaching certificate. Students planning to add an endorsement to a Washington teacher certificate must apply to WSU’s add-on endorsement program. This non-thesis degree focuses on developing K-12 teachers’ or other professionals’ knowledge and skills in education and leadership and may include a concentration of coursework outside the Department of Teaching and Learning.

Doctoral Programs (Ph.D. and Ed.D.)

(Pullman only) Specializations include Curriculum and Instruction, Cultural Studies and Social Thought in Education, Language and Literacy Education, Math Education, and Special Education (see education.wsu.edu/graduate for program descriptions and application procedures).

WSU TRI-CITIES TEACHER CERTIFICATION

www.tricity.wsu.edu/education

Inquiries and requests for application materials should be addressed to WSU Tri-Cities, Department of Teaching and Learning, 2710 University Drive, Richland WA 99354-1671, 509-372-7366. WSU Tri-Cities seeks to prepare the best possible teachers and therefore seeks highly qualified individuals. Admission to, or continued enrollment in, the teacher preparation program may be denied on the basis of review by the faculty.

Bachelor of Arts

Applicants to the bachelor of arts program with elementary certification at the Tri-Cities campus who meet the minimum requirements are eligible for consideration, but not assured admission. Enrollment is limited and admission is competitive. Admission deadlines are October 1 and March 1 with admission effective the following semester. Candidates must complete formal admission procedures and be admitted to teacher preparation prior to taking any professional education coursework beyond T&L 300 or 301. Applicants must meet the admission criteria listed for WSU Pullman, with the exception that a timed writing sample is not required as part of the interview process. T&L 300 and 301 may not be required for program admission by transfer students who are admitted to the program before they begin taking classes at WSU. T&L 300 and 301 must be taken in the first semester of the program by these students in order to remain eligible for the major.

Master in Teaching (MIT)

The Tri-Cities campus offers an MIT degree with two options leading to elementary and secondary teacher certification. Applicants to the MIT programs who meet the minimum requirements are eligible for consideration, but not assured admission. Applicants must have a bachelor's degree from an accredited institution with a minimum 3.0 GPA in their last 60 semester hours of undergraduate graded course work or 12 hours of graduate graded course work. Additional admission requirements include: 1) application to the Graduate School, complete with submission of transcripts and letters of recommendation; 2) documentation of 80 hours work with children or youth, 20 hours of which must be in public school classrooms; 3) completed Character and Fitness form; 4) completed Graduate Information Form with resume and personal statement; and 5) passing scores on all sections of the WEST-B exam.

The MIT with Elementary Certification is a two-year, cohort-based program leading to elementary certification and a master's degree while emphasizing preparation to work in multicultural settings. Students must have completed coursework to satisfy state requirements in math; U.S. history; social sciences including geography, economics, American government, and world civilizations; and political, physical, and laboratory sciences. Applications must be submitted by March 1 in odd-numbered years for fall semester admission. Further information may be obtained from the Department of Teaching and Learning, WSU Tri-Cities.

MIT with Secondary Certification is a full-time, 12-month sequence of courses leading to secondary certification, with four further courses required to complete the master's degree. All applicants must meet subject endorsement requirements in a core academic subject. Not all subject endorsements are offered at WSU Tri-Cities; for current information on endorsement offerings, please contact the Department of Teaching and Learning at WSU Tri-Cities.

Content deficiencies will be determined through a transcript evaluation, which is required prior to application to the MIT program. To have transcripts evaluated, forward to the Department of Teaching and Learning at WSU Tri-Cities official transcripts in sealed envelopes, with a cover letter requesting an evaluation for a specific content area. Applications must be submitted by March 1 for admission for summer term. New student cohorts begin annually in May. Further information may be obtained from the Department of Teaching and Learning, WSU Tri-Cities.

Course of Study for Secondary Education (minimum 45 hrs): Ed Ad 507, 510 EdPsy 502, T&L 502, 503, 506 or 525, 521, 528, 588, 593, 595, 702 plus two graduate-level content specialty courses and any needed content methods course(s).

### Teacher Professional Certification Program

WSU Tri-Cities offers the Pro Cert on the Tri-Cities campus as well as at other sites in partnership with regional school districts.

### Education Masters (Ed.M.)

WSU Tri-Cities also offers an Education Master's degree (Ed.M.) program in literacy with endorsements in reading, special education, and/or bilingual/ELL teaching for educators who already have a teaching certificate. This non-thesis degree focuses on K-12 literacy development across the curriculum. Students planning to add an endorsement to a Washington teacher certificate must apply to WSU's add-on endorsement program. For additional information about certification issues please contact the Department of Teaching and Learning, WSU Tri-Cities.

### WSU VANCOUVER TEACHER CERTIFICATION

[www.vancouver.wsu.edu/programs/edu/education.htm](http://www.vancouver.wsu.edu/programs/edu/education.htm)

Inquiries and requests for application materials should be addressed to WSU Vancouver, Education Department, 14024 NE Salmon Creek Avenue, Vancouver WA 98686, 360-546-9673, or by email at admissions@vancouver.wsu.edu.

WSU Vancouver seeks to prepare the best possible teachers and therefore seeks highly qualified individuals for admission to the Bachelor of Arts in Education and the Master in Teaching programs. Admission to, or continued enrollment in, a teacher preparation program may be denied a candidate on the basis of review by the faculty. Field experiences with accompanying seminars allow the inter-cooperating partners to engage in ongoing dialogue with university field personnel throughout the year and are coordinated with academic work.

### Schedules of Studies

**Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.**

### Bachelor of Arts in Education

This Teacher Preparation Program culminates in a bachelor's degree with elementary certification. The program is designed for students who have a direct transfer Associate of Arts degree or who have completed 60 semester hours of study and who have also completed the required program prerequisites. Students can obtain a list of the prerequisites by contacting the Education Department at 360-546-9673. All applicants must have a passing score on the state wide basic skills (WEST-B) test to be considered for admission. Students must be admitted to both WSU and the Teacher Preparation Program before beginning education classes. Students are admitted and begin classes only during the summer session.

### Master in Teaching (MIT)

The Master in Teaching is a full-time, 15-month field-based program leading to elementary or secondary certification and a master's degree. Applicants must have a bachelor's degree from an accredited institution with a minimum 3.0 GPA in the last 60 semester hours of graded course work, and submit the MIT application portfolio which is available from the WSU Vancouver Education Department. All applicants must have a passing score on the state wide basic skills (WEST-B) and subject test (WEST-E) to be considered for admission. Applications are available in the summer and must be submitted by October 1 for secondary certification and December 1 for elementary certification in order to be considered for the program beginning the following May.


### Teacher Professional Certificate Program

WSU Vancouver offers the Pro Cert program on the Vancouver campus as well as at other sites in partnership with regional school districts.

### Education Master's Degree (Ed.M.)

WSU Vancouver also offers an Education Master's degree (Ed.M.) degree program with endorsements in reading, special education, and/or bilingual ESL for educators who already have a teaching certificate. This non-thesis degree focuses on K-12 developing teachers’ or other professionals’ knowledge and skills in education and leadership.

### Schedules of Studies

**First Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biological Sciences</td>
<td>4</td>
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<tr>
<td>ComSt 102 [C] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>H D 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math prereq, if necessary, or Elective</td>
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**Second Term**

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<th>Course</th>
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<tbody>
<tr>
<td>GenEd 110 [A] (GER)</td>
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</tr>
<tr>
<td>Math 251</td>
<td>3</td>
</tr>
<tr>
<td>Mus 153 [H] (GER), if necessary</td>
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</tr>
<tr>
<td>Psych 105 [S] (GER)</td>
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<tr>
<td>Science Elective [B,P,Q] (GER)</td>
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**Third Year**

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<tr>
<td>Am St 216 [S,D] or Hist 150 [S,D] (GER)</td>
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<tr>
<td>Engl 201 [W] (GER)</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Physical Sciences [P] (GER)</td>
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**Fourth Year**

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<td>Mus 388</td>
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<td>Science Elective [B,P,Q] (GER)</td>
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<tr>
<td>T &amp; L 352</td>
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<td>T &amp; L 371</td>
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**Second Term**

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<td>Intercultural Studies [I,G,K] (GER)</td>
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<tr>
<td>T &amp; L 390</td>
<td>3</td>
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<tr>
<td>T &amp; L 483</td>
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<td>Tier III Course [T] (GER) (Am St 473 recommended)</td>
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**Fourth Year**

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<tr>
<td>Sp Ed 420/421</td>
<td>2 or 3</td>
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</table>
SPECIFIC SUBJECT TEACHER CERTIFICATE

Candidates for specific subject certificates shall declare a major with the subject-matter department and meet the GER and degree requirements of that department. Students completing subject-specific endorsements will follow the Secondary Professional Education Core: Psych 105; EdPsy 468, T&L 300, 301, 317, 465, 466, 467, 470 and 415 unless admitted to an Ed.M. certificate program.

In addition to meeting requirements of the degree-granting department, the student must meet admission requirements and make formal application to the teacher preparation program prior to enrolling in any professional education courses beyond T & L 300, 301, and 317. It is recommended that candidates begin professional education courses in the sophomore or junior year to meet sequencing requirements. Students should include the following courses within GER selections to fulfill prerequisite and admission to teacher preparation program requirements: ComSt 102; Engl 198 and 199 or Engl 101 plus Engl 201, 301, 302, or 402; Psych 105.

First Year
First Term
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math Proficiency [N] (GER) 3
Psych 105 [S] (GER) 3
Science Elective [B,P,Q] (GER) 3 or 4

Second Term
Arts & Humanities [H,G] (GER) 3
Biological Sciences [B] (GER) 3
ComSt 102 [C] (GER) 3
Endorsement 2
GenEd 111 [A] (GER) 3

Second Year
First Term
Arts & Humanities [H,G] or Social Sciences [K] (GER) 3
Endorsement 2
Engl 201 [W], 301 [W], or 302 [W] 3
Physical Sciences [P] (GER) 3
Certify in Major

Second Term
Endorsement 2
Intercultural Studies [J,G,K] (GER) 3
T & L 300 1
Complete Writing Portfolio

Third Year
First Term
Endorsement 2 3
T & L 301 3

Endorsement

Certify In Teaching and Learning
Complete West-B

Second Term
Endorsement 2
T & L 317 2
Complete May practicum

Fourth Year
First Term
Endorsement 2
T & L 464 3
T & L 465 3
T & L 466 2

Second Term
EdPsy 468 3
T & L 467 3
T & L 469 3
T & L 470 3
Tier III Course [T] (GER) 3

Fifth Year
First Term
T & L 415 16

Footnotes
1 Students may substitute 3 credits of Biol and 4 credits of Phys S.
2 Credit hours needed for the endorsement are from 30-74, depending on the major.

Specific Subject Endorsements

Agricultural Education
(60 hours): AFS 101, 201, 301, 401; A S 101, EconS 350 or 351; Ag Ed 342, 407, 440, 442, 471; AgTM 201, 402; CropS/Hort 102; 3 hrs. 300-400-level CropS elective; 3 hrs Hort elective; SoilS 201, plus 18 additional credits in technical agriculture selected with advisor approval. 20 credits in technical agriculture must be upper division. A valid first aid card is required for vocational certification.

Biology
(72 hours): Biol 106, 107, 301, 372, 405, 430, 499; Chem 105, 106, 345; MBioS 303, 305, 306; Math 140 or 171; Phys 101, 201; Pharm 102 or 202; Stat 212, 412, or Psych 311; one from Hist 381, 382, 483, Soc 430 or UH 410; Ph S 430; Stat 210, 315, 340, 360, 415, 481; PEACT 112, proficiency in 4 of 5 activity areas; aquatic, individual sports, team sports, dance, gymnastics; Psych 230.

Chemistry
(67 hours): Biol 106, 107; Chem 105 or 115, 106 or 116, 220, 222, 235, 346, 347, 499; one from Hist 381, 382, 483, Soc 430, or UH 410; Math 140 or 171; MBioS 303, 304; Ph S 430; Phys 101 or 201, 202 or 202, Stat 212, 412 or Psych 311. Additional 9 hours 300-400-level Chem (Chem 331, 333 suggested.)

Designated World Language Russian
(40 hours): Rus 204, 306, 307, 360, 361; one from For L 101, 110, 120, 130, 220; two from Rus 101, 121, 131; Rus 410 or 430; three from EconS 416, 1 Bus 380, Rus/Hist 461, 462, 463, 465, 466, Rus 450, Pol S 333, 412; For L 441.

Early Childhood Education
(108 hours): ComSt 102 or H D 205; Engl 198, 201, 301, or 302; two 3-4 credit Tier I or II [B, P, Q] courses; HD 201, 202 or 101; 204, 302, 341, 342, 410, 446, 449, 482; Sp Ed 409; Hist 150 or Am St 216; Math 251, 252; Mus 388; T & L 300, 307, 390, 321, 322, 352, 371, 385, 402, 403, 405, 413, 415, 445, 483.

Earth Science
(67 hours): Geol 101 or 102 (102 preferred), 206, 210, 315, 340, 350, 399; Math 140 or 171; Phys 101, 102; Chem 105, 106; Biol 106; A&H 345; ES/RP 174; Hist 381, 382, 483, Soc 430 or UH 410; Ph S 430; Stat 212, 315, 340, 360, 415, 481; PEACT 112, proficiency in 4 of 5 activity areas; aquatic, individual sports, team sports, dance, gymnastics; Psych 230.

English Language Arts
(42 hours): Engl 302; Hum 101, 103, 198, 302, 303, 304, 335, 350, 410 or 450; three from Engl 370, 371, 372, 373; Engl 205, 305 or 306; Engl 326, 325, 324, 323; 12 hours English or Humanities electives (3 hours must include an advisor approved writer-of-color class).

Family and Consumer Sciences
(59 hours): Ag Ed 440; two from AMT 211, 215, 417; FSHN 120, 121, 130; H D 201, 202, 203, 204, 302, 320, 350, 406, 407, 409, 410, 479, 480.

Health and Fitness
(67 hours): Ath T 266, 311; Biol one from 102, 106, 107; Biol 251; Chem 101 or 105; FSHN 130; H F 361, 484, 493, 481, 483; MvSt 199, 262, 264, 362, 380, 415, 461, 481; Psych 230, 361, 393, 484; one from Hist 411, 413, 414, 415, 416; one from Hist 412, 417, 418, 419; 6 hours 300-400-level Hist electives which must include one European and one global non-western course.

History
(48 hours): EconS 102; Pol S 101; Hist 101, 102, 110, 11300, 422, 469, 480; two from Hist 230 or 231, 270; 272 or 273; 275; one from Hist 411, 413, 414, 415, 416; one from Hist 412, 417, 418, 419; 6 hours 300-400-level Hist electives which must include one European and one global non-western course.

Mathematics
(41 hours): Math 171, 172, 220, 273, 301, 303, 315, 330, 360, 398, 431, 432, 320 or 421; Phys 201.

Music
Each endorsement requires the passing of a piano proficiency examination, an upper-division exam, a solo half-recital, a 2.5 GPA and a grade of C or better in all music courses. If the requirements listed below along with the graduation requirements of the College of Liberal Arts are met, the degree will be Bachelor of Music.

Choral/Instructoral/General (73 hours): Mus 251, 252, 253, 254, 351, 352, 353, 354, 359,
English Language Learners [undergraduate level]

Reading
(20 hours): Tkl 528, 551, 553, 558; one from Tkl 307, 353, 544, 547, 548, 552; one from Tkl 322, 538, 546, 544; one from Tkl 413, 505, 507, 537.

Science
(Hours vary): The candidate must complete a full endorsement in biology, chemistry, physics or earth science plus the following courses, if not included in the full endorsement: one 3-4 credit Astronomy course; Chem 435; two from Geol 102, 210, 323 or Biol 107.

Special Education [undergraduate level]

Description of Courses
Special Education Courses
Sp Ed
301 Education of Exceptional Children 3
Survey of characteristics of students with disabilities, and overview of programming, legal aspects, and methods of instruction.

401 Teaching Students with Disabilities 3
Prereq either Sp Ed 301 or Sp Ed 420 or c//; c// in Sp Ed 490 for 2 credits. Intervention and instructional strategies for managing academic, social, and behavior problems in classroom settings. Credit not granted for both Sp Ed 401 and 501.

402 Assessment and Curriculum for Students with Disabilities 3
Prereq either Sp Ed 301, Sp Ed 420 or c//; c// in Sp Ed 490 for 2 credits. Methods of individual and group, formal and informal assessment for students with disabilities. Credit not granted for both Sp Ed 402 and 502.

403 Secondary Education for Students with Disabilities 3
Prereq either Sp Ed 301, Sp Ed 420 or c//. Prereq either Sp Ed 301, Sp Ed 420 or c//. Overview of instruction and intervention strategies for secondary students with disabilities; assessment, and curriculum/program development. Credit not granted for both Sp Ed 403 and 503.

404 Professional Skills in Special Education 3
Prereq either Sp Ed 301, Sp Ed 420 or c/. Legal aspects of special education, individualized education plans, roles and responsibilities of teachers, collaboration techniques, service delivery/design, and supervision of paraprofessionals. Credit not granted for both Sp Ed 404 and 504.

409 Early Childhood Special Education 3
Prereq either Sp Ed 301, Sp Ed 420 or c/. Assessment, curriculum, and instructional techniques for teaching young children with handicaps and their families in a variety of settings. Credit not granted for both Sp Ed 409 and 509.

420 Teaching in Inclusive Classrooms 2
Prereq certified education major. Designed for preservice/inservice general education (K-12) teachers to learn how to teach students with disabilities. Credit not granted for both Sp Ed 420 and 520.

421 Inclusion Strategies for Special Education Teachers 3
Prereq either Sp Ed 301 or Sp Ed 420. Roles and responsibilities of special education professionals in inclusion programs, including legal aspects and collaboration. Credit not granted for both Sp Ed 421 and 521.

440 Methods in Intensive Educational Supports 3
Prereq either Sp Ed 301, Sp Ed 420 or c/. Assessment, curriculum development and modification, and instructional methods for students with severe disabilities. Credit not granted for both Sp Ed 440 and 540.

470 Effective Assessment and Instruction in Reading for Diverse Learners 3
Prereq Sp Ed 301, Sp Ed 420 or c/. Preparation of K-12 teachers to conduct reading assessment and design reading interventions for students struggling in reading and literacy.

490 Practicum in Special Education V 1-3 May be repeated for credit; cumulative maximum 8 hours. Supervised field experience in special education. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Teaching Students with Disabilities 3
Prereq either Sp Ed 301, Sp Ed 420/520 or c//; c// in Sp Ed 590 for 2 credits. Graduate-level counterpart of Sp Ed 401; additional requirements. Credit not granted for both Sp Ed 401 and 501.

502 Assessment and Curriculum for Students with Disabilities 3
Prereq either Sp Ed 301, Sp Ed 420/520 or c//; c// in Sp Ed 590 for 2 credits. Graduate-level counterpart of Sp Ed 402; additional requirements. Credit not granted for both Sp Ed 402 and 502.

503 Secondary Special Education for Students with Disabilities 3
Prereq either Sp Ed 301, Sp Ed 420/520 or c/. Graduate-level counterpart of Sp Ed 403; additional requirements. Credit not granted for both Sp Ed 403 and 503.

504 Professional Skills in Special Education 3
Prereq either Sp Ed 301, Sp Ed 420/520 or c/. Graduate-level counterpart of Sp Ed 404; additional requirements. Credit not granted for both Sp Ed 404 and 504.

509 Early Childhood Special Education 3
Prereq either Sp Ed 301, Sp Ed 420/520 or c/. Graduate-level counterpart of Sp Ed 409; additional requirements. Credit not granted for both Sp Ed 409 and 509.
307 Survey of Children's Literature 2
Prereq T&L 301. For candidates admitted to teacher preparation. Types, values, selection of children's literature; role of teacher in facilitating children's experiences with books.

310 [M] Classroom Management 2
Prereq T&L 301. For candidates admitted to teacher preparation. Strategies for developing positive and supportive classroom learning environments.

317 Secondary Practicum and Seminar 2
Prereq T&L 301. Classroom experience providing observation, reflection and gradual classroom involvement and teaching responsibility. S, F grading.

319 Literacy Practicum 1 (0-3) Practicum for students serving as literacy tutors in schools and agencies; methodologies, at-risk issues and community-school partnerships. S, F grading.

320 Elementary Reading Methods 3
Prereq certified education major; T & L 301; c// in T & L 305, 306, 307 and 402 (1 credit). Teaching methods, materials, and content in elementary school reading.

321 Early Literacy 3
Prereq T&L 301. For candidates admitted to teacher preparation. Designed for pre-service teachers to link assessment and instruction with the development of early reading and writing skills.

322 [M] Reading and Writing in Grades 4 - 8 3
Prereq T&L 301; T & L 321. For candidates admitted to teacher preparation. Designed for pre-service teachers to link assessment and instruction and assist upper-elementary students to read and write more effectively.

330 Diversity in Schools and Society 2
Prereq T & L 301. For candidates admitted to teacher preparation. Gender, linguistics, cultural and learning diversity; concepts, issues, approaches to educating students in a diverse society.

333 Introduction to English as a Second Language (ESL) 3
Foundations of ESL with attention to basic concepts of second language processing in educational settings.

335 Bilingual/Bicultural Education 3
Same as CES 356.

339 Communicating in Diverse Classrooms 3
Prereq T & L 333 or 413. Selected topics dealing with linguistic diversity, cross-cultural communication, language development and language use.

352 Teaching Elementary Mathematics 3
Prereq Math 251; Math 252; T & L 301. For candidates admitted to teacher preparation. Teaching methods, materials, and content in elementary and middle school mathematics.

355 Chicana/os and the Educational System 3
Same as CES 355.

371 Teaching Elementary Science 3
Prereq 12 credits [B] [P] [Q]; T & L 301. For candidates admitted to teacher preparation. Teaching methods, materials, and content in elementary and middle school science.

385 Teaching Elementary Social Studies 3
Prereq T & L 301. For candidates admitted to teacher preparation. Teaching methods, materials, and content in elementary and middle school social studies.

390 Integrating Fine Arts into K-8 Curriculum 3
Prereq T & L 301. For candidates admitted to teacher preparation. Integrating the range of fine arts (art, music, dance, drama) into K-8 curriculum; designed for preservice and inservice general K-8 teachers.

401 Practicum in Bilingual/ESL Education 2 (0-6) May be repeated for credit; cumulative maximum 6 hours. Prereq either T & L 333, T & L 335, or graduate standing. Work with students from diverse cultural and linguistic backgrounds in an educational setting implementing theoretical foundations, skills, and strategies acquired from ESL coursework.

402 Instructional Practicum I V 1 (0-3) to 6 (0-18) May be repeated for credit; cumulative maximum 6 hours. Prereq T & L 301. For candidates admitted to teacher preparation. Application of educational theories and approaches learned during methods Block I.

403 Social Foundations of Elementary Curriculum 2
Prereq T & L 301. For candidates admitted to teacher preparation. The school; historical, and philosophical foundations of education; school law and professional certification.

405 Instructional Practicum II V 1 (0-3) to 6 (0-18) May be repeated for credit; cumulative maximum 6 hours. Prereq certified education major. Application of educational theories and approaches learned during methods Block II.

409 Curriculum and Assessment for Bilingual/ESL Education 3
Prereq T & L 333; T & L 335 or 414. Curriculum development for assessment of language minority students.

410 Theoretical Foundations of Bilingual/ESL Education 3
Prereq T & L 333, 335, or graduate standing. Theoretical foundations related to research and instructional strategies for effective schooling of language minority students. Credit not granted for T & L 410 and 510.

411 Bilingual Methods and Materials Across Content Areas 3
Prereq either T & L 333, T & L 335, T & L 339, T & L 410, T & L 413, or graduate standing. Approaches, methods, and materials across content areas for the bilingual classroom.

412 Language and Cultural Factors in Mathematics 3
Prereq T & L 352. For candidates admitted to teacher preparation and experienced teachers. Research and instructional strategies related to linguistic and cultural influences on learning math. Credit not granted for both T & L 412 and 512.

413 Introduction to ESL for K-8 Teachers 2
Prereq certified education major. Introduction to teaching ESL students for K-8 teachers.
414 Methods and Materials for Bilingual/ESL Education 3 Prereq T & L 333. For candidates admitted to teacher preparation and experienced teachers. Research and instructional methods related to English language acquisition across content areas. Credit not granted for both T & L 414 and 514.

415 Student Teaching V 6 (1-15) to 16 (1-45) Prereq certified education major and passing score on the WEST-E content examination. To begin student teaching the candidate must have paid certification fees and have a currently valid teacher certificate application with character and fitness supplement on file; completed with a C or better all course work for the teacher certificate; received fingerprinting clearance from Washington State Patrol, FBI, and Office of Professional Practices; earned a 2.5 GPA overall, in endorsement area and professional core courses. Placement by interview only at approved sites. Supervised teaching in public schools including seminars reflecting on effective teaching and professional certification. S, F grading.

425 Conceptual Aspects of Mathematics 3 Exploration of conceptual models for thinking about mathematical ideas; activities and discussions of mathematical thinking and instruction.

431 Innovations in Reading 2 Aspects of teaching reading; current programs and trends; activities and materials for enrichment. Credit not granted for both T & L 431 and 530.

433 Children's Literature in the Curriculum 2 Theory and classroom applications for selecting and using literature and storytelling in content areas; reading, writing, language development, the arts. Credit not granted both T & L 433 and 532.

445 Elementary Methods of Educational Technology 2 (1-2) Prereq T & L 301. For candidates admitted to teacher preparation. Consideration of all technologies in K-8 schools, applications for their use, some production techniques and instructional methodologies.

452 Content Area Reading and Study Skills Practicum V 1-3 May be repeated for credit; cumulative maximum 3 hours. For candidates admitted to teacher preparation and experienced teachers. Development and delivery of vocabulary, comprehension, and study skills.

462 Corrective Reading in the Classroom 2 For candidates admitted to teacher preparation and experienced teachers. Investigation, formulation, application of informal and formal assessment for classroom instruction; specific needs of children with reading difficulties.

464 Curriculum, Instruction and Content Literacy Methods 3 Prereq T & L 300, 301, 317; T & L 465, 466; admission to the teacher preparation program. Development of curriculum, instruction and content literacy materials and methods for teaching in the secondary school classroom.

465 Culture and Community Contexts of Education 3 Prereq T & L 300, 301, 317; T & L 464, 466; admission to the teacher preparation program. Cultural and community-based contexts of schooling, teaching and education.

466 Secondary Methods of Educational Technology 2 (1-2) Prereq T & L 300, 301, 317; T & L 464, 465; admission to the teacher preparation program. Integration of technologies for teaching and learning within the 9-12 classrooms; hands-on development of technology enhanced activities and lessons.


469 Advanced Practicum 2 Prereq T & L 464, 465, 466; T & L 468, T & L 467; admission to the teacher preparation program. Field experience with classroom observation and teaching prior to student teaching; weekly seminar included. S, F grading.

470 ESL/Special Education Methods for Secondary Teachers 3 Prereq T & L 300, 301, 317; T & L 464, 466 or c//; admission to the teacher preparation program. Methods for teaching second language learners and students with special needs in the secondary school classroom.

472 Technology for Language Learning 3 Prereq T & L 333, 335, or graduate standing. Computer technologies addressing the needs of language minority students and their teachers (including audio, video, graphics, and text).

473 Teaching Foreign Language in the Elementary School 3 Fluency in a language other than English required. Theory and methods of teaching foreign languages in the elementary schools.

480 Multicultural Education in a Global Society 3 Multicultural and multilingual education from a global perspective; development of multicultural curriculum. Credit not granted for more than one of T & L 480, 580, 582.

483 Integrating Health and Fitness into K-8 Curriculum 3 Prereq T&L 301. For candidates admitted to teacher preparation. Integrating health and fitness concepts into the K-8 curriculum; issues of abuse; designed for preservice and inservice K-8 teachers.

487 Topics in In-Service Education V 1-3 May be repeated for credit; cumulative maximum 9 hours. New developments and applications on selected in-service and staff development topics.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Bilingual/ESL Education 3 May be repeated for credit; cumulative maximum 6 hours. Work with students from diverse linguistic and cultural backgrounds in educational settings.

502 Assessment for Teaching and Learning V 1-3 Instruction in sound assessment practices for preservice and inservice graduate students.

503 ESL Methods and Material for Secondary Content Teachers 2 Research-based ESL strategies and methods for pre-service and secondary content area teachers.

504 Advanced Study in Linguistics for Educators 3 Prereq admission to T & L graduate program. Use of linguistics to better understand second language learning and teaching and the physical aspects of acquiring a language.

505 ESL Methods for General Educators (K-8) 2 Research-based ESL strategies and methods for pre-service and experienced teachers.

506 Multicultural Classroom Instruction and Management 4 Instructional and management strategies for maximizing students’ opportunities to learn in a multicultural setting.

507 Seminar in Literacy in Multicultural Settings I 3 Multicultural perspective to curriculum development and classroom literacy practices.

508 Seminar in Literacy in Multicultural Settings II 3 Prereq T & L 507. Multicultural perspective to curriculum development and classroom literacy practices.

509 Research in Curriculum and Assessment for Bilingual/ESL Education 3 Prereq T & L 510 or 549. Research in curriculum development for and assessment of language minority students.

510 Theoretical Foundations of Bilingual/ESL Education 3 Prereq either T & L 333, T & L 335, or T & L 413. Graduate-level counterpart of T & L 410; additional requirements. Credit not granted for both T & L 410 and 510.

511 Teaching Poetry to Children and Young People 3 Elements and forms of poetry for children and young people; selection and utilization in the school curriculum.

512 Language and Cultural Factors in Mathematics 3 Prereq T & L 352. For pre-service and experienced teachers. Graduate-level counterpart of T & L 412; additional requirements. Credit not granted for both T & L 412 and 512.
513 Seminar in Middle School Education 3
For experienced teachers. Curriculum patterns and recent research regarding instruction and materials in the contemporary middle school.

514 Methods and Materials for Bilingual/ESL Education 3 Prereq T & L 510 or T & L 549. For pre-service and experienced teachers. Graduate-level counterpart of T & L 414; additional requirements. Credit not granted for both T & L 414 and 514.

515 The Education of Cultural and Linguistic Minority Students 3 Issues in the education of language minority students.

516 Advanced Study in Computer-Assisted Language Learning 3 Prereq T & L 510 or T & L 549. Research, theory, and practice in computer-assisted language learning.

517 Educational Technology in K-8 Schools 2 (1-2) Prereq admission to MIT program. Technology standards for teachers, technology use in schools, production techniques and instructional methods.

518 Integrating Technology into the Curriculum 3 Examination and articulation of the potential for new technologies to expand learning opportunities.

519 Instructional Media Production I 3 Instructional media development, emphasizing the theory and methods of instructional design, digital media production and evaluation.

520 Topics in Special Student Populations V 1-4 May be repeated for credit; cumulative maximum 6 hours. For K-12 teachers. Knowledge of special student populations and guidance in developing appropriate curricula. Cooperative course taught jointly by WSU and UI (EDTE 504).

521 Topics in Education V 1-4 May be repeated for credit; cumulative maximum 6 hours. Recent research, developments, issues, and/or applications in selected areas of education.

522 Topics in Education V 1-3 May be repeated for credit; cumulative maximum 6 hours. Recent research, development, issues, and/or applications in selected areas of education.

523 Topics in Education V 1-3 May be repeated for credit; cumulative maximum 6 hours. Recent research, development, issues, and/or applications in selected areas of education.

524 Topics in Education V 1-3 May be repeated for credit; cumulative maximum 6 hours. Recent research, development, issues, and/or applications in selected areas of education.

525 Classroom Management Seminar 2 or 3 Contemporary issues in management of elementary, middle school, and secondary classrooms; issues of abuse.

526 Research in Multicultural Education 3 Prereq either T & L 515 or by permission. Research and instructional practices focusing on multicultural education.

527 Seminar in Teacher Education Instruction 1 May be repeated for credit; cumulative maximum 4 hours. Teacher preparation program components and rationale, university teaching strategies, and evaluation methods. S, F grading.

528 Content Area Reading Instruction: Theory and Practice 3 For teachers, supervisors, and administrators in elementary, middle, and secondary schools; influence of research on the design of reading strategies.

529 Place-Based Education 3 Theory and practice of place-based education with an emphasis on community-based action research and curriculum planning.

530 Innovations in Reading 2 Graduate-level counterpart of T & L 431; additional requirements. Credit not granted for both T & L 431 and 530.

532 Children’s Literature in the Curriculum 2 Graduate-level counterpart of T & L 433; additional requirements. Credit not granted for both T & L 433 and 532.

535 Gender, Power and Education 3 Interdisciplinary focus on the relationships among gender, power and education.

537 Seminar in Language, Literacy, and Culture 3 Interrelationships between schools, literacy, and student cultural background.

538 Writing Across the Curriculum 3 Writing for learning at grade levels K-12.

539 Innovations in Language Arts 3 The most recent developments in language arts instruction for pre-service and in-service teachers K-12.

540 Elementary School Social Studies 3 For candidates admitted to graduate teacher preparation and experienced teachers. Elementary structures of various social sciences; research findings related to instruction; classroom applications and materials.

541 Teacher Professional Certification: Pre-Assessment Seminar 3 Prereq completion of ProCert application, Provisional Status/Employer Support verification (WAC 180-78A-505), & a copy of Residency Teaching Certificate. Candidates evaluate current teaching against standards to determine steps for professional growth plans which measure positive impact on student learning.

542 Teacher Professional Certification: Researching Exemplary Practices 2 Prereq completion of T&L 541: Pre-Assessment Seminar. Teachers will apply exemplary practices, continue to assess their performance and college evidence of positive impact on student learning.

543 Teacher Professional Certification: Culminating Seminar 2 Prereq completion of T & L 541 (Pre-Assessment Seminar), Professional Growth Record initial activities approved, completed core credits, and Evidence/Artifacts gathered. Candidates will complete ProCert requirements to document positive impact on students’ learning; set new goals; learn about National Board options.

544 Advanced Children’s Literature 3 Trends, issues, and research in children’s literature.

545 Oral Language Development: Roots of Literacy 3 Research on children’s oral language development; applications to elementary school reading and writing.

546 Teaching Writing in the Elementary School 3 Theory and research relevant to instructional approaches and practices for teaching writing in elementary schools.

547 Teaching Folk Literature to Children and Adolescents 3 Folk literature as a genre in child and adolescent literature; curriculum applications; reading, language development, social studies, creative expression.

548 Teaching Adolescent Literature 3 Evaluating, selecting, and using literature for middle school and teenage students.

549 Communicating in a Multilingual Society 3 Prereq T & L 333, T & L 335, T & L 413 or graduate standing. Study of language in social and educational context and its relation to cultural and linguistic diversity.

550 Second Language Learning and Literacy 3 Prereq admission to doctoral program. Research on second language teaching and learning in literacy education with a focus on English language learners in US schools.

551 Psychology of Reading V 2 or 3 Psychological, perceptual, motivational, developmental and physiological aspects of reading.

552 Literacy Development I 3 For candidates admitted to graduate teacher preparation. Review of current research and approaches to instruction in the development of literacy in elementary and middle grades.

553 Assessment and Instruction for Reading: K-8 A (3-3) Prereq T & L 307; T & L 321; T & L 322; T & L 531. Evaluation techniques and instructional practices for impacting the reading achievement of K-8 students.

555 Seminar in Literacy Development 3 May be repeated for credit; cumulative maximum 6 hours. Current and historical research in reading/language arts, infancy through college and adult years; papers presented by faculty, invited speakers, and students.

556 Literacy Development II 3 Prereq for candidates admitted to graduate teacher preparation. Review of current research and approaches to instruction in the development of literacy in elementary and middle grades.

557 Research in Reading 3 Prereq EdPsy 505. Exploration of qualitative and quantitative reading research covering topics of current and historical importance.

558 Improving Comprehension through Literature 3 Key theoretical concepts and their implications for improved comprehension instruction, using children’s literature.
560 Research in Teaching 3 May be repeated for credit; cumulative maximum 6 hours. Recent developments in research on teaching; both quantitative and qualitative research methodologies emphasized.

561 Elementary School Mathematics 3 Research on curriculum and instruction issues in elementary school mathematics.


563 Seminar in Precollege Mathematics Education 3 May be repeated for credit; cumulative maximum 6 hours. Research on curriculum and instruction in mathematics education in grades K-12.

564 Elementary School Mathematics Methods 3 For candidates admitted to graduate teacher preparation. Introduction to research, theory, and methods of teaching K-8 mathematics; emphasis on integrating theory and practice.

565 Introduction to Scholarly Inquiry 1 Prereq graduate standing. Introduction to the Ed.M program including the scholarship and research requirements and the role of students and action research.

566 Democratic Education 3 Prereq graduate standing. Rationale and skill to assist teachers in making classrooms more democratic.

567 Social Foundations of Literacy 3 Prereq admission to doctoral program. Social, cultural and political factors which influence the acquisition and use of literacy.

568 Psychological Foundations and Assessment of Literacy 3 Prereq admission to doctoral program. Historical look that blends the assessment of literacy and its psychological components.

571 Elementary School Science 3 Prereq for candidates admitted to graduate teacher preparation. Theories and research underlying science programs with classroom implications.

572 Elementary School Science Methods 3 For candidates admitted to graduate teacher preparation. Theoretical base to design and implement appropriate standards-based elementary science instruction.

573 Children’s Literature and Hands-On Science 3 Prereq for candidates admitted to graduate teacher preparation. Students learn how to bring together language arts and science curricula to instill in children a curiosity about the world around them.

574 Science for All: An Individual and Multicultural Perspective 3 Prereq for candidates admitted to graduate teacher preparation. Implications of cultural and individual diversity for understanding western scientific and mathematical thought; an activity-based, educational perspective.

580 Multicultural Education in a Global Society 3 Graduate-level counterpart of T & L 480; additional requirements. Credit not granted for more than one of T & L 480, 580, 582.

583 Problem Solving in Elementary and Middle Level Education 3 For candidates admitted to graduate teacher preparation. Integration of knowledge and skills to address complex cases in teaching and learning.

586 Issues in At-risk Education V 2 or 3 School and community resources to assist at-risk students and families.

587 Environment, Culture and Education 3 Prereq graduate standing. Role of education in the social, ecological, and political conflicts between culture and environment.

588 Action Research: Teachers as Research 3 Theoretical concepts, research, issues, models, and strategies for implementation of action research.

589 Race, Identity and Representation in Education 3 Interdisciplinary research in race, identity and representations in education.

590 Internship V 2-6 May be repeated for credit; cumulative maximum 12 hours. By interview only. Opportunities in professional positions. S, F grading.

593 Pre-internship and Seminar 2 (1-3) Instructional practice in diverse classroom settings and reflection on that practice. S, F grading.

594 Integrating Fine Arts into K-8 Curriculum 2 Integrating Fine Arts (art, music, dance, drama) into K-8 curriculum; designed for pre-service MIT.


596 Topics in In-Service Education V 1-3 (1-3) May be repeated for credit; cumulative maximum 9 hours. New developments and applications on selected in-service and staff development topics. S, F grading.

600 Special Projects or Independent Study Variable credit S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.

Department of Theatre Arts and Dance

libarts.wsu.edu/theatre

Daggy 320

509-335-7447

Professor and Program Director, L. J. Harris; Professor, T. Converse; Instructors P. Gooden-Young, S. Brown, D. Bourland, J. Carlson, B. Gonzales.

The Department in Theatre and Dance provides theatre students with a foundation of studies in performance, production, history and analysis of the theatre arts within a liberal arts context. As an integral part of the academic program, WSU Theatre presents a regular schedule of productions by faculty and students. The undergraduate curriculum offers a well-rounded background in all of the major disciplines of theatre. There are currently two major dance productions each year.

Graduating students are expected to: (1) have the necessary fundamental skills to achieve employment in professional or academic theatre; (2) communicate effectively, both verbally and in writing, about their chosen field of study; (3) engage in competent historical, critical, and technological research in all major relevant areas of theatre; (4) understand the theoretical bases of their chosen discipline; and (5) develop creative approaches to problem-solving in the discipline.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

THEATRE ARTS AND DRAMA - GENERAL OPTION

(120 HOURS)

Students pursuing a teaching endorsement option must have a minimum GPA of 2.5 in all of the following areas: cumulative GPA, Professional Education Core with a C or better in each course, and academic major with a C or better in each course (and minor if any). Students certifying as majors in teacher endorsement curricula must also certify as majors in the College of Education.

First Year

First Term Hours

Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Social Sciences [S,K] (GER) 3
Theat 145 3
Theat 260 3

Second Term Hours

Communication Proficiency [C,W] (GER) 3
GenEd 111 [A] (GER) 3
Math Proficiency [N] (GER) 3 or 4
Theat 163 3
Theat 360 3
Second Year

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>First Term</td>
<td></td>
</tr>
<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Physical Sciences [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Theat 313</td>
<td>3</td>
</tr>
<tr>
<td>Theat 450 or 462</td>
<td>3</td>
</tr>
<tr>
<td>Second Term</td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Shakespeare [H] (GER) recommended</td>
<td>3</td>
</tr>
<tr>
<td>Theat 363</td>
<td>3</td>
</tr>
<tr>
<td>Theat 496</td>
<td>1</td>
</tr>
<tr>
<td>Complete Writing Portfolio</td>
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</table>

Third Year

<table>
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<tr>
<th>Term</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>First Term</td>
<td></td>
</tr>
<tr>
<td>Science Elective [B,P,Q] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Theat 261</td>
<td>3</td>
</tr>
<tr>
<td>Theat 362</td>
<td>3</td>
</tr>
<tr>
<td>Theat 365</td>
<td>3</td>
</tr>
<tr>
<td>Theat 496</td>
<td>1</td>
</tr>
<tr>
<td>Second Term</td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Theat 361</td>
<td>3</td>
</tr>
<tr>
<td>Theat 366</td>
<td>3</td>
</tr>
<tr>
<td>Theat 496</td>
<td>1</td>
</tr>
<tr>
<td>Electives</td>
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</table>

Fourth Year

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>First Term</td>
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</tr>
<tr>
<td>Theat 364 or 461</td>
<td>3</td>
</tr>
<tr>
<td>Theat 401 or 465</td>
<td>3</td>
</tr>
<tr>
<td>Theat 402</td>
<td>1</td>
</tr>
<tr>
<td>Tier III Course [T] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
</tr>
<tr>
<td>Second Term</td>
<td></td>
</tr>
<tr>
<td>Shakespeare [H] (GER) recommended</td>
<td>3</td>
</tr>
<tr>
<td>Theat 402</td>
<td>1</td>
</tr>
<tr>
<td>Theat 467</td>
<td>3</td>
</tr>
<tr>
<td>Theat 496</td>
<td>3</td>
</tr>
<tr>
<td>Theat 497</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
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</table>

Minors

Theatre

A theatre minor requires 17 hours of which a minimum of 9 hours must be at the 300-400 level and taken in residence at WSU or through WSU approved education abroad or educational exchange courses. Required core courses include Theat 260 or 261, 163 or 363, 365 or 366; 2 or 3 hours in 496; and two additional courses from Theat 145, 160, 163, 260, 261, 313, 360, 361, 362, 363, 364, 365, 366, 367, 450, 461, 462, 465, 467 or 480.

**Description of Courses**

**Dance Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>210 Jazz Dance I</td>
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</tr>
<tr>
<td>211 Modern Dance I</td>
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</tr>
<tr>
<td>310 Jazz Dance II</td>
<td>1</td>
</tr>
<tr>
<td>311 Modern Dance II</td>
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</tr>
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</table>

**Theatre Arts Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Theat 145 [G] Contemporary World Theatre</td>
<td>3</td>
</tr>
<tr>
<td>150 Film History</td>
<td>3</td>
</tr>
<tr>
<td>163 Theatre Technology: An Introduction</td>
<td>3</td>
</tr>
<tr>
<td>160 [H] Introduction to Theatre</td>
<td>3</td>
</tr>
<tr>
<td>162 Theatre Technology: Production</td>
<td>3</td>
</tr>
<tr>
<td>261 Performance I: Directing</td>
<td>3</td>
</tr>
<tr>
<td>262 Performance I: Acting</td>
<td>3</td>
</tr>
<tr>
<td>264 Stage Makeup</td>
<td>2</td>
</tr>
<tr>
<td>294 Stage Speech</td>
<td>2</td>
</tr>
<tr>
<td>313 Movement for Stage</td>
<td>3</td>
</tr>
<tr>
<td>360 Performance II: Acting</td>
<td>3</td>
</tr>
<tr>
<td>361 Performance II: Directing</td>
<td>3</td>
</tr>
</tbody>
</table>

**Production Analysis** 3 (0-3) May be repeated for credit; cumulative maximum 6 hours. Analysis and comparison of theatre productions through discussion and written evaluation.

**Performance III: Acting** 3 (0-6) May be repeated for credit; cumulative maximum 6 hours. Prereq Theat 360 or by interview only. Creative process of acting together with practical experience working with student directors; acting in an alternative or non-realistic context.

**Technical Theatre Management** 3 Prereq Theat 163. Organization and management of theatrical productions; the role of the stage manager, backstage crews; coordination of designers and directors.

**Visual Communication in Theatre, Film and Television** 3 Analysis of the visual aspects of theatre, film and television.
463 Seminar in Theatre Design 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq Theat 163. Sketching, mechanical drawing, watercolors, model building, and use of theatrical materials and techniques.

464 Creative Drama 3 Philosophy and techniques of informal drama; practical experience integrated into the curriculum; emphasis on application to educational setting. Credit not granted for both Theat 464 and 564. Cooperative course taught by WSU, open to UI students (ThA 381).

465 Dramatic Theory and Criticism 3 Prereq Theat 362, 365, 366, or by interview only. Undergraduate seminar exploring the major developments in dramatic theory, concentrating particularly on the scope and boundaries of postmodern critical methodologies.

467 Topics in Drama 3 May be repeated for credit; cumulative maximum 6 hours. Individualized study and discussion of drama and performance theory from different historical eras and social contexts.

480 Playwriting 3 Prereq Engl 351; Theat 362. Practical experience in the creative process of playwriting.

490 Internship in Professional Theatre V 2-15 Prereq Theat 163, 264; 360 or 361; 362; 365 or 366. Off-campus experience with Seattle area professional theatres in all aspects of production excluding performance. S, F grading.

496 Applied Theatre Studies V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 12 hours. Practical application of acting, scenery construction and painting, costumes, properties, box office and other projects connected with University Theatre productions.

497 Exit Project 3 (0-9) Prereq senior standing; certified theatre major. End of program assessment; students must define project and have it approved by the supervisor. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

502 Production Analysis 1 (0-3) May be repeated for credit; cumulative maximum 6 hours. Graduate-level counterpart of Theat 402; additional requirements. Credit not granted for both Theat 402 and 502.

561 Performance III: Directing 3 (0-6) Prereq by interview only. Graduate-level counterpart of Theat 461; additional requirements. Credit not granted for both Theat 461 and 561.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit S, F grading.

College of Veterinary Medicine

www.vetmed.wsu.edu

Bustad 110
509-335-1532

The College of Veterinary Medicine offers courses of study leading to the degrees of Doctor of Veterinary Medicine, Bachelor of Science in Veterinary Science, Master of Science in Veterinary Science, and Doctor of Philosophy. Additional information, including requirements for admission, is contained in the general information section of this catalog.

The College of Veterinary Medicine at Washington State University is accredited by the American Veterinary Medical Association.

DOCTOR OF VETERINARY MEDICINE PROGRAM REQUIREMENTS

A minimum of seven years is required to obtain the degree of Doctor of Veterinary Medicine (DVM). The first three years of preveterinary training can be taken at any institution having courses equivalent to those taught at Washington State University, and the last four years are professional study directed by the College of Veterinary Medicine.

Applicants for admission to the College of Veterinary Medicine must present at least 60 semester hours of acceptable credits from an accredited college or university, exclusive of military training and physical education. The 60 semester hours should include: 3 to 6 hours of social science and 3 to 6 hours of arts and humanities, to total 9 hours; 6 hours communication proficiency; 6 hours intercultural studies; 6 hours world civilizations; 3 hours mathematics proficiency (General Education Requirements for graduation); 37 hours including zoology or general biology, inorganic and organic chemistry, biochemistry, physics, mathematics, genetics, and statistics.

Courses designed to fit these requirements are offered by Washington State, and the number of students admitted to preveterinary work is not limited. Since the number of applicants for admission to the professional course exceeds the number that can be admitted, no assurance can be given that all applicants who successfully complete the preveterinary curriculum will be admitted. WSU does not grant a BS in pre-veterinary medicine. Students taking pre-veterinary course work may declare a major in any subject, but are encouraged to major in animal science, biology, chemistry, microbiology, neuroscience, wildlife, or zoology.

A major in veterinary medicine is not declared until admission to the College of Veterinary Medicine has been granted.

Information regarding the acceptability of course credits should be obtained from the director of admissions, College of Veterinary Medicine.

ADMISSION TO THE DVM PROGRAM

A student seeking to enter the professional DVM program should fill out Both a VMCAS (Veterinary Medical College Application Service) and supplemental WSU-CVM online application. Deadline for submission of applications is October 1. A $60 application/processing fee will be assessed as part of completing the application. The Washington and Idaho admissions committees, with the approval of the Board of Regents, select those students to be admitted to the first year of the professional program. Applicants will be notified of their acceptance on or before March 15. Successful applicants who are not currently enrolled at WSU will be asked to fill out a uniform undergraduate application for admission to WSU. Successful applicants who wish to be considered the next year must present new applications.

In accordance with policies adopted by the Board of Regents, preference for admission to the College of Veterinary Medicine is as follows:

* To qualified students coming from homes in the states of Washington and Idaho

* To qualified students certified and financed by the Western Interstate Commission for Higher Education (WICHE) Compact states

* To all other qualified students

BACHELOR OF SCIENCE DEGREE IN VETERINARY SCIENCE

The Bachelor of Science degree in Veterinary Science is available only to students who have been admitted to the professional DVM program. This degree was designed to benefit veterinary medical students in obtaining employment, applying for scholarships, and qualifying for graduate-level course enrollments. A minimum of 120 semester hours is required for the degree and includes completion of the general education requirements listed in this catalog, as well as completion of 60 additional hours of acceptable university credit, 34 hours of which must be 500-level or above in the professional curriculum of the College of Veterinary Medicine.

HONORS PROGRAM FOR SELECTED STUDENTS

A program for admission of highly selected and academically qualified students to the Washington State University College of Veterinary Medicine has been established. This program admits students directly to the college upon completion of one year of undergraduate work at WSU. This is a seven-year program leading to the Doctor of Veterinary Medicine degree after satisfactory completion of the curriculum. It consists of three years of a unique undergraduate preveterinary education and the four-year professional program. The first three years of this program are a combination of Honors College courses and regular university classes which fulfill the preveterinary requirements. The last four years are the traditional Doctor of Veterinary Medicine program plus the completion of an honors thesis. Applicants should identify themselves to the Honors College as soon as students decide to enter WSU, because number of positions is limited.

Joint Program in Animal Science and Veterinary Medicine—See Department of Animal Sciences.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.
PROFESSIONAL CURRICULUM

The professional curriculum for the Doctor of Veterinary Medicine degree is outlined below. A total of 151 semester hours are required for graduation. All courses required in the professional program are 500P-600P-level courses.

First Term Hours
- V M 510P
- V M 511P
- V M 513P
- V M 568P

Second Term Hours
- V M 512P
- V M 520P
- V M 534P
- V M 545P
- V M 580P

Third Year Hours
- V M 502P
- V M 524P
- V M 551P
- V M 553P
- V M 554P
- V M 569P
- V M 578P
- V M 585P

Fourth Year Hours
- V M 500P
- V M 570P
- V M 571P
- V M 572P
- V M 576P
- V M 579P
- V M 590P
- V M 598P

Second Term Hours
- V M 600P
- V M 605P
- V M 606P
- V M 607P
- V M 608P
- V M 609P
- V M 628P
- V M 629P

Third Term Hours
- V M 630P
- V M 650P
- V M 674P
- V M 675P
- V M 690P
- V M 691P
- V M 699P

Fourth Term Hours
- V M 699P

508 P Research Orientation and Resource
- Prerequisite: Veterinary medicine student. Resources and important issues for identifying and developing a focused area of scholarly activity in biomedical research. S, M, F grading.

509 P Research Issues, Ethics, and Literacy
- Prerequisite: Veterinary medicine student. Philosophy and history of methodological, ethical and political issues relevant to biomedical research using selected monographs and essays. May be repeated for credit; cumulative maximum 3 hours. S, M, F grading.

510 P Veterinary Microscopic Anatomy
- Prerequisite: First year in veterinary medicine or graduate student. Microscopic functional morphology of the cell, tissues, and selected organ systems of domestic animals. S, M, F grading.

511 P Veterinary Anatomy I
- Prerequisite: Veterinary medicine student or graduate student. Detailed macroscopic functional morphology of the dog with comparison to other domestic animals; developmental anatomy of selected organ systems. S, M, F grading.

512 P Veterinary Anatomy II
- Prerequisite: Veterinary medicine student. Detailed macroscopic functional morphology of domestic animals. S, M, F grading.

513 P Veterinary Cell Physiology
- Prerequisite: Veterinary medicine student or graduate student. Cell physiology focusing on endocrine, paracrine, and neurotransmission signaling processes, transcriptional and translational control, and methodologies relevant to medicine. S, M, F grading.

517 P Applied Anatomy of Small Animals
- Prerequisite: Veterinary medicine student or graduate student. Applied anatomy of small animals including surgical anatomy. S, M, F grading.

518 P Applied Anatomy of Large Animals
- Prerequisite: Veterinary medicine student or graduate student. Applied anatomy of large animals including surgical anatomy. S, M, F grading.

520 P Veterinary Physiology
- Prerequisite: Veterinary medicine student or graduate student. Veterinary physiology of large and small animals. S, M, F grading.

521 P Introduction to Veterinary Neurology
- Prerequisite: Veterinary medicine student or graduate student. Neuroanatomical and neurophysiological bases of veterinary neurology; emphasizing central and peripheral sensory and motor systems. S, M, F grading.

522 P Fundamentals of Pharmacology
- Prerequisite: Veterinary medicine student. Pharmacokinetics and fundamentals of drug action. S, M, F grading.

523 P Veterinary Toxicology
- Prerequisite: Veterinary medicine student. Pharmacology and toxicology of the systems of domestic animals. S, M, F grading.

524 P Clinical Veterinary Pharmacology
- Prerequisite: Veterinary medicine student. Clinical pharmacology of domestic animal species. S, M, F grading.
525 P Animal Behavior for the Practicing Veterinarian 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. Prereq veterinary medicine student. Study of the treatment of behavioral problems and training of domestic animals. S, M, F grading.


527 P Clinical Animal Behavior V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Participation in the treatment of animals with behavioral problems and in animal behavior training classes for clients and their animals. S, M, F grading.

534 P Veterinary Immunology 3 (2-3) Prereq veterinary medicine student or graduate student in veterinary science. Immunology for the professional veterinary student. S, M, F grading.

535 P Veterinary Virology 3 Prereq veterinary medicine student or graduate student in veterinary science. Virology for the professional veterinary student. S, M, F grading.

536 P Veterinary Bacteriology 4 (3-3) Prereq veterinary medicine student. Bacteria that produce disease in animals. S, M, F grading.

537 P Veterinary Parasitology 4 (3-3) Prereq veterinary medicine student. Arthropods, protozoa, and helminths of veterinary importance; their host-parasite relationship and control. S, M, F grading.

541 P Fish Disease Diagnostics and Control 2 (1-2) Prereq veterinary medicine major. Current fish disease diagnostics techniques crucial to management and control of disease in wild or confined populations. Cooperative course taught by UI (Fish 524), open to WSU students.


543 P Veterinary Medicine and Human Health 2 Prereq veterinary medicine student. Preparation for veterinary students in public health and food hygiene. S, M, F grading.


554 P Surgery Laboratory I 1 (0-3) Prereq c/l in V M 553P. Surgical exercises using small animals. S, M, F grading.

555 P Surgery Laboratory I 1 (0-3) Prereq c/l in V M 553P. Surgical exercises minimizing use of living animals. S, M, F grading.


559 P Special Animal Medicine V 1-3 Prereq veterinary medicine student. Handling, restraint, care, normative features, procedures and diseases of unusual animals as pets or those used in food production or research. S, M, F grading.

560 P Clinical Problem Solving V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 4 hours. Prereq veterinary medicine student. Web-based clinical problem solving course designed to enhance problem-solving skills using simulated patients. S, M, F grading.

561 P Clinical Specialties V 1-4 Prereq veterinary medicine student. This course includes clinical disciplines that are not considered core internal medicine, such as ophthalmology and dermatology. S, M, F grading.

568 P Animal Handling and Animal Agriculture Orientation 2 (1-3) Prereq veterinary medicine student. Restraint procedures, production aspects and the social issues of agricultural animals seen by veterinarians and career opportunities associated with them. S, M, F grading.


570 P Agricultural Animal Medicine II 3 Prereq V M 569P. Infectious and non-infectious conditions of agricultural animals; introduction to performance medicine. Continuation of V M 569P. S, M, F grading.


575 P Small Animal Theriogenology 1 Prereq veterinary medicine student. Information on management and disorders of the canine and feline reproductive systems as it relates to veterinary practice. S, M, F grading.


577 P Herd Production Medicine V 1-3 Prereq DVM or equivalent. Health management of livestock herds, targeting measures of productivity and profitability. S, M, F grading.


580 P Basic Nutrition 1 Prereq veterinary medicine student. Introduction to the concepts of basic nutrition designed for the first year veterinary student. S, M, F grading.

581 P Equine Orthopedic Sports Medicine 1 Prereq VM 574P. 15 one-hour presentation/discussion sessions as an advanced supplement to VM 628P. Not available for audit. S, M, F grading.

585 P Epidemiology 2 Prereq veterinary medicine student. Minimally quantitative survey in which health is framed as a population phenomenon. S, M, F grading.

586 Analytic Epidemiology 2 (1-3) Prereq statistics course. Problem-solving methods related to health events and other occurrence phenomena.


509 P Small Animal Referral Medicine V 1 (0-3) to 4 (0-12) Prereq veterinary medicine student. Elective clinical experience with the small animal referral medicine service in the small animal clinic of the Veterinary Medicine Hospital. S, M, F grading.

608 P Small Animal Orthopedic Surgery V 1 (0-3) to 4 (0-12) Prereq veterinary medicine student. Required clinical experience with the small animal orthopedic surgery service in the small animal clinic of the Veterinary Medicine Hospital. S, M, F grading.


521 P Clinical Cardiology V 1 (0-3) to 4 (0-12) Prereq veterinary medicine student. Basics in physical assessment, diagnosis and treatment of common cardiac disorders. S, M, F grading.

522 P Equine Surgery Clinical Rotation V 2 (0-6) to 6 (0-18) Prereq veterinary medicine student. Required rotation through the Equine Surgery Services of the Veterinary Teaching Hospital. S, M, F grading.

621 P Population Medicine V 1 (0-3) to 4 (0-12) Prereq veterinary medicine student. Required rotation through the Veterinary Teaching Hospital. S, M, F grading.

622 P Large Animal Theriogenology V 1 (0-3) to 4 (0-12) Prereq veterinary medicine student. Elective clinical theriogenology subjects in large animals. S, M, F grading.

623 P Preventive Medicine at Canine Center V 1 (0-3) to 4 (0-12) Prereq veterinary medicine student. Preventive medicine and management practices related to control of animal diseases at Canine Center, UI, Caldwell, Idaho. S, M, F grading.


625 P Clinical Oncology V 1 (0-3) - 4 (0-12) May be repeated for credit, cumulative maximum 4 hours. Prereq veterinary medicine student. Diagnosing, staging and treating the veterinary cancer patient. S, M, F grading.

626 P Epidemiology of Diseases 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Field research on the epidemiology of a selected disease problem including project design, data collection and completion of a paper. S, M, F grading.

627 P Preventive Medicine at Canine Center V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Preventive medicine and management practices related to control of animal diseases at Canine Center, UI, Caldwell Idaho. S, M, F grading.
636 P Equine Medicine Elective V 1 (0-3) to 4 (0-12) May be repeated for credit, cumulative maximum 8 hours. Prereq veterinary medicine student. Elective clinical experience with the Equine Medicine Service in the Large Animal Clinic of the Veterinary Teaching Hospital. S, M, F grading.

637 P Equine Surgery Elective V 1 (0-3) to 4 (0-12) May be repeated for credit, cumulative maximum 8 hours. Prereq fourth year veterinary medicine. Elective clinical experience with the Equine Surgery Service in the Large Animal Clinic, Veterinary Teaching Hospital. S, M, F grading.

638 P Equine Track V 1 (0-3) to 4 (0-12) Prereq fourth year veterinary medicine; enrollment in equine career track. Clinical experience with the Equine Surgery Service of the Large Animal Clinic, Veterinary Teaching Hospital. S, M, F grading.

639 P Small Animal Theriogenology V 1 (0-3) to 4 (0-12) Prereq veterinary medicine student. Hands-on experience in diagnosis, treatment, prevention and management of disorders related to canine and feline reproduction. S, M, F grading.

650 P Anesthesia Case Management V 1 (0-3) to 4 (0-12) Prereq veterinary medicine student. Required rotation through the Clinical Anesthesia Service of the Small Animal Clinic and Large Animal Clinic of the Veterinary Teaching Hospital. S, M, F grading.


652 P Technical and Diagnostic Radiology V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 4 hours. Prereq veterinary medicine student. Laboratory exercises and instructional sessions to increase proficiency in clinical diagnostic radiology. S, M, F grading.

653 P Imaging Services Elective V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Elective clinical and laboratory experience with the Radiology Section in the Small Animal Clinic, Veterinary Teaching Hospital. S, M, F grading.

654 P Diagnostics V 1 (0-3) to 4 (0-12) Prereq veterinary medicine student. Advanced study in diagnostic pathology, toxicology, and microbiology. S, M, F grading.

655 P Clinical Pathology V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 4 hours. Prereq veterinary medicine student. Clinical laboratory diagnosis and interpretation. S, M, F grading.

673 P Small Animal Critical Care V 1 (0-3) to V 4 (0-12) May be repeated for credit; cumulative maximum 4 hours. Prereq veterinary medicine student. Elective clinical experience, didactic topic discussions, and instructional sessions in small animal critical care. S, M, F grading.

674 P Small Animal Intensive Care V 1 (0-3) to 4 (0-12) Prereq veterinary medicine student. Required rotation for all students through the small animal intensive care unit. S, M, F grading.

675 P Emergency and Critical Care V 1 (0-3) to 4 (0-12) Prereq veterinary medicine student. Required rotation for all students through the large animal emergency and critical care unit. S, M, F grading.

676 P Veterinary Research Practicum V 1 (0-3) to 8 (0-24) May be repeated for credit; cumulative maximum 14 hours. Prereq veterinary medicine student; enrollment in research track program or approved for research career track. Individualized research project. S, M, F grading.

690 P Externship V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq veterinary medicine student. Theory of practice of veterinary medicine in a non-university situation. S, M, F grading.

691 P Guided Preceptorship V 1 (0-3) to 4 (0-12) Prereq veterinary medicine student. Guided preceptorship in an accepted extramural clinical or laboratory setting. S, M, F grading.

692 P Government, Corporate, and Zoological Practice Elective V 1 (0-3) to 6 (0-18) May be repeated for credit; cumulative maximum 10 hours. Prereq veterinary medicine student. Elective experience in government, corporate, and zoological veterinary medicine arranged through nationwide matching program. S, M, F grading.

693 P Laboratory Animal Medicine V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Elective clinical and laboratory experience with major research facilities such as the Department of Comparative Medicine, University of Washington. S, M, F grading.

694 P Avian Medicine 4 (0-12) Prereq veterinary medicine student. Laboratory diagnosis and pathology of avian (pet bird and commercial fowl) diseases. S, M, F grading.

699 P Advanced Clinical Elective V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Advanced clinical subjects developed as courses for fourth year veterinary students. S, M, F grading.

692 P Government, Corporate, and Zoological Practice Elective V 1 (0-3) to 6 (0-18) May be repeated for credit; cumulative maximum 10 hours. Prereq veterinary medicine student. Elective experience in government, corporate, and zoological veterinary medicine arranged through nationwide matching program. S, M, F grading.

693 P Laboratory Animal Medicine V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Elective clinical and laboratory experience with major research facilities such as the Department of Comparative Medicine, University of Washington. S, M, F grading.

694 P Avian Medicine 4 (0-12) Prereq veterinary medicine student. Laboratory diagnosis and pathology of avian (pet bird and commercial fowl) diseases. S, M, F grading.

699 P Advanced Clinical Elective V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Advanced clinical subjects developed as courses for fourth year veterinary students. S, M, F grading.

Description of Courses

Veterinary Anatomy Courses

V An


413 Advanced Anatomy 3 (1-6) May be repeated for credit; cumulative maximum 6 hours. Prereq V M S12P. Microscopic and gross anatomy of selected organ systems.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. For MS in veterinary science only. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. For PhD in veterinary science only. S, F grading.

Veterinary Physiology and Pharmacology Courses

V Ph

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

505 Design and Analysis of Biomedical Experiments 4 Prereq Math 107; Stat 212 or higher. Design of experiments with application to clinical and basic biomedical research; choosing, applying, and evaluating appropriate data analysis methods.

529 Integrative Neuroscience 3 Prereq graduate standing; biochemistry course. Same as Neuro S29. Cooperative course taught by WSU, open to UI students (Zool 529).

531 Neuroscience Laboratory Rotation 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. Prereq graduate standing. Same as Neuro S31. S, F grading.

541 Biochemistry 3 Prereq Chem 346. Intermediate biochemistry; introduction to metabolism and the chemical and physical properties of biomolecules. Cooperative course taught by UI (MMB 541), open to WSU students.

542 Biochemistry 3 Prereq V Ph 541. Intermediate biochemistry; introduction to metabolism and the chemical and physical properties of biomolecules. Cooperative course taught by UI (MMB 542), open to WSU students.

555 General and Cellular Physiology 4 (3-3) Prereq Mbio 303 or c//. Mbio 513. Physiochemical mechanisms of cellular function.

Department of Veterinary and Comparative Anatomy, Pharmacology, and Physiology

www.vetmed.wsu.edu/depts-vcapp

Wegner 205
509-335-0986

557 Advanced Mammalian Physiology 4
Prereq V Ph 555. Function and control of mammalian organ systems.

590 Seminar 1 May be repeated for credit; cumulative maximum 4 hours. Same as Neuro 590, S, F grading.

592 Research Seminar 2 May be repeated for credit; cumulative maximum 6 hours. Same as Neuro 592.

600 Special Projects or Independent Study
Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination
Variable credit. For MS in veterinary science only. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination
Variable credit. For PhD in veterinary science only. S, F grading.

Description of Courses

Veterinary Clinical Medicine and Surgery Courses

V MS

361 Agricultural Animal Health 3 Prereq one semester animal science or biological science. Introduction to basic concepts of infectious, noninfectious, and parasitic diseases of animals of agricultural and public health importance.

367 Medical and Surgical Problems in the Horse 3 Basic health care of horses with respect to good health care and recognizing and responding to disease and injury situations.

498 Nihon University Seminar 2 (1-3) Prereq forth or fifth year veterinary DVM students from Nihon University. Lectures and laboratory sessions in small animal, exotic animal, and equine veterinary medicine and surgery. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. Prereq DVM student. S, F grading.

573 Special Topics in Equine Surgery 1 May be repeated for credit; cumulative maximum 6 hours. Prereq DVM or graduate standing. Small group discussion and periodic laboratory/practical experience related to large animal surgery.

574 Cardiology Special Topics 1 May be repeated for credit; cumulative maximum 6 hours. Prereq DVM or graduate standing. Clinical cardiology topics and special problems; current medical or interventional information.

575 Equine House Officer Rounds 1 May be repeated for credit; cumulative maximum 6 hours. Prereq DVM or graduate standing. Weekly small group discussion of problems in equine medicine, surgery or reproductive medicine using current or recent case material from the Veterinary Teaching Hospital.

576 Introduction to Veterinary Clinical Research 2 Prereq DVM or graduate standing. Designing, executing, analyzing and reporting clinical research fundamental to practicing evidence-based medicine.

577 Applied Veterinary Physiology I 2 Prereq DVM. Review of physiology as it relates to clinical veterinary medicine and specific diseases of animals through analysis of recent medical literature.

578 Applied Veterinary Physiology II 2 Prereq V MS 577; DVM. Continuation of V MS 577.

579 Oncology Rounds Seminar 1 Prereq DVM degree. Presentation and discussion of veterinary oncology cases include imaging, pathology, clinical pathology, appropriate diagnostic steps, therapy options and potential outcomes. S, F grading.

580 Advanced Clinical Pathology 1 May be repeated for credit; cumulative maximum 6 hours. Prereq DVM or graduate standing. Weekly small group discussion of laboratory and cytologic abnormalities in recent cases from the Veterinary Teaching Hospital.

582 Seminar in Clinical Medicine 1 May be repeated for credit. Prereq DVM degree.

583 Advanced Anesthesiology 2 Prereq DVM degree. Advanced veterinary anesthesiology as applied to clinical practice.

584 Comparative Theriogenology 1 Prereq DVM degree. Lectures from WSU College of Veterinary Medicine and Department of Animal Sciences and from UI Department of Animal and Veterinary Science.

585 Selected Topics in Advanced Clinical Neurology 1 or 2 May be repeated for credit; cumulative maximum 10 hours. Prereq DVM degree. Advanced veterinary neurology as applied to clinical practice.

586 Diagnostic Ultrasound 2 Prereq DMV or graduate standing. Diagnostic ultrasound and its application to clinical medicine in large and small animals.

587 Hospital Rotation 3 (0-9) May be repeated for credit; cumulative maximum 6 hours. Prereq DVM degree. Supervised practical experience in all service areas of the veterinary hospital. Cooperative course taught by WSU, open to UI students (VS 587).

589 Advanced Clinical Veterinary Medicine V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq DVM degree. Special topics.

590 Special Topics in Equine Medicine 1 May be repeated for credit; cumulative maximum 6 hours. Prereq DVM or graduate standing. Weekly small group discussion of problems in equine medicine, surgery or reproductive medicine using current or recent case material from the Veterinary Teaching Hospital.

591 Advanced Clinical Diagnosis V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq DVM degree. Advanced course in systems clinical and laboratory examination.

592 Seminar 1 May be repeated for credit. Cooperative course taught by WSU, open to UI students (VS 592). S, F grading.

593 Anesthesia Seminar 1 Prereq DMV degree or equivalent. Critical review of current topics in veterinary anesthesia.

594 Advanced Small Animal Surgery 3 (2-3) May be repeated for credit; cumulative maximum 6 hours. Prereq DVM degree. Clinical experimental techniques.

595 Advanced Laboratory Diagnosis V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq DVM degree. Advanced clinical laboratory diagnosis and interpretation.

596 Advanced Radiology 2 (1-3) Prereq DVM degree. Advanced study in the field of veterinary radiology and radiation treatment.

597 Diagnosis and Treatment of Surgically Correctable Soft Tissue Diseases in Small Animals V 1 or 2 May be repeated for credit; cumulative maximum 6 hours. Prereq DVM or permission. Review of recent advances in diagnosis and treatment of diseases in the field of small animal surgery.

598 Surgery Residents Seminar 1 May be repeated for credit. Prereq DVM degree. Surgery residents’ and interns’ presentations of case reports, literature reviews and research. S, F grading.

600 Special Projects or Independent Study
Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination
Variable credit. For MS in veterinary science only. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination
Variable credit. For PhD in veterinary science only. S, F grading.
Department of Veterinary Microbiology and Pathology

www.vetmed.wsu.edu/depts-vmp
Bustad 402
509-335-6030


Description of Courses

Veterinary Microbiology Courses

V Mic

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

535 Advanced Readings in Veterinary Microbiology 1 (0-3) May be repeated for credit. Prereq fourth year in veterinary medicine or graduate student in Vet S. Supervised reading program which peruses publications of intermediate technical difficulty and advanced textbooks.

536 Diagnostic Microbiologic Conference 1 (0-3) May be repeated for credit. Prereq graduate student in veterinary science. Identification of animal pathogens in clinical material.

541 Advanced Diagnostic Microbiology 1 (0-3) May be repeated for credit; cumulative maximum 8 hours. Prereq V M 534P, 535P, 536P. Microbiology laboratory for performing and interpreting virologic, serologic, and related tests for the diagnosis of animal diseases.

572 Advanced Topics in Microbiology, Parasitology, or Immunology V 1-3 May be repeated for credit; cumulative maximum 4 hours. Advanced topics in microbiology, parasitology, or immunology presented in short-course, or workshop format.

591 Seminar in Diagnostic Microbiology 1 May be repeated for credit; cumulative maximum 8 hours. Seminar in diagnostic veterinary microbiology.

592 Advances in Immunobiology 1 May be repeated for credit. Cooperative course taught by WSU, open to UI students (VS 592).

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. For MS in veterinary science only. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. For PhD in veterinary science only. S, F grading.

Department of Women’s Studies

libarts.wsu.edu/women
Wilson 10
509-335-1794

Associate Professor and Department Chair, L. Heidenreich; Professor, N. Surgeon; Assistant Professor, N. Shihani, P. Thoma; Clinical Associate Professor, J. Meuth, M. Sicilichides.

Women’s Studies is an interdisciplinary field of research and teaching that places gender and women at the center of inquiry. Central to our consideration of gender are the ways class, race, ethnicity, nationality, sexual orientation, age, and ability shape the female and male experience. Women’s Studies places the social construction of gender in the context of national and international political and economic relations. The Bachelor’s of Arts in Women’s Studies is designed to achieve four major objectives:

(1) to facilitate the understanding of continuing social change in structures and systems organized around gender, race, class, and sexuality;
(2) to provide students with a systematic knowledge of the multidisciplinary scholarship about and by women in the field;
(3) to enhance the qualifications of students preparing for careers in business, education, government, communications, the sciences and social sciences, among others; and
(4) to further university and societal goals of gender equality and social justice.

A Bachelor of Arts in Humanities, Social Sciences, or Liberal Arts, concentrated in Women’s Studies, is available through the General Studies Program.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

WOMEN’S STUDIES REQUIREMENTS

(120 HOURS)

The major requires a minimum of 39 credit hours which must include W St 200, 300, 332, 410, 484, and 481 or 485.

First Year

First Term

Hours

Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Science Elective (GER) 4
W St 200 [S,D] (GER) 3

Second Term

Hours

Arts & Humanities [H,G] (GER) 3
Biological Sciences [B] (GER) 4
GenEd 111 [A] (GER) 3
Social Sciences [S,K] (GER) 3
W St Humanities Elective1 3
Second Year

**First Term**
- Communication Proficiency [C,W] (GER) 3
- Math Proficiency [N] (GER) 3
- W St 300 [S] (GER) 3
- W St Humanities Elective1 3
- Elective 3

**Second Term**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Intercultural Studies [I,G,K] (GER) 3
- W St 332 [I] (GER) 3
- W St Social Science Electives1 6
- Prepare for W St Internship (W St 410) 3
- Complete Writing Portfolio

Third Year

**First Term**
- 300-400-level W St Elective 3
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Physical Sciences [P] (GER) 4
- W St 484 [T,D] (GER) 3
- Elective 3

**Second Term**
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- W St 410 3
- W St Elective 3
- 300-400-level Electives 6

Fourth Year

**First Term**
- 300-400-level W St Elective 3
- W St 481 [M] or 485 3
- W St Elective 3
- 300-400-level Electives 6

**Second Term**
- 300-400-level Electives 9
- Tier III Course [T] (GER) 3
- Elective 3

Footnotes
1 Consult advisor.

### Minors

**Women’s Studies**

The minor requires a minimum of 16 credit hours, of which 9 hours must be upper-division work and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Coursework must include W St 200, 300, and either 481 or 485.

**Description of Courses**

**Women's Studies Courses**

- **W St**
  - 130 [H] Masterpieces of German Literature in Translation 3 Same as Ger 130.
  - 150 [S,D] Marital and Sexual Life Styles 3 Same as Soc 150.

- **200 [S,D] Gender and Power: Introduction to Women’s Studies** 3 Analysis of gender and power in contemporary society from perspectives of different racial, ethnic and socioeconomic groups.

- **204 [S] Family Systems: Understanding Family Interaction** 3 Same as H D 204.

- **210 [H] Diverse Sexualities and Cultural Production** 3 Introduction to US lesbian cultural production, including writing and film, within a larger socio-political context.

- **214 [S,D] Gender and Culture in America** 3 Same as Anth 214.

- **216 [S,D] American Culture** 3 Same as Am St 216.

- **220 [S,D] Women, Science, and Culture** 3 Analysis of gender, culture, science, and technology through examination of real world issues and hands-on investigation.

- **230 [H] Human Sexuality** 3 Prereq Psych 105. Same as Psych 230.

- **235 [H,D] African American History** 3 Same as CES 235.

- **255 [S,D] Chicana/o History** 3 Same as CES 255.

- **276 Special Topics: Study Abroad** 3 1-15 May be repeated for credit. S, F grading.

- **277 Special Topics: Study Abroad** 3 1-15 May be repeated for credit. S, F grading.

- **298 [S,D] History of Women in American Society** 3 Same as Hist 298.

- **300 [S,M] Intersections of Race, Class, Gender and Sexuality** 3 Prereq CES 101, Soc 101, or W St 200. Intersections between race, class and gender through case studies; experiences in interdisciplinary methods.

- **301 Topics in Women’s Studies** 3 V 1-3 May be repeated for credit; cumulative maximum 9 hours.

- **302 [S,D] Contemporary Masculinity and Men’s Issues** 3 Analysis of the development of masculinity in its biological and cultural forms.

- **305 [S] Gender and Politics** 3 Same as Pol S 305.

- **306 [H,M] Introduction to Literary Criticism** 3 Same as Engl 308.

- **308 [H] Women Artists I, Middle Ages-1900** 3 Same as F A 308.

- **309 [H] Women Writers** 3 Same as Engl 309.


- **311 Topics in Women’s Studies** 3 V 1-3 May be repeated for credit; cumulative maximum 9 hours. Focused study of subjects/issues relating to women.

- **315 [S,D] Women in Management and Leadership** 3 Analysis of women’s historical and contemporary role in American management.

- **316 [K] Gender in Cross Cultural Perspective** 3 Same as Anth 316.

- **317 [H,D] Gay and Lesbian Literature** 3 Same as Engl 317.

- **320 Resource Management and Problem Solving** 3 Same as H D 320.

- **321 Topics in Women’s Studies** 3 V 1-3 May be repeated for credit; cumulative maximum 9 hours. Focused study of subjects/issues relating to women.

- **324 [S,D] Psychology of Women** 3 Prereq Psych 105. Same as Psych 324.

- **332 [I] Global Feminisms** 3 Prereq Anth 101 or W St 200. An interdisciplinary approach to examining women’s roles and experiences throughout the world and different approaches to feminism/feminisms.

- **335 [K] Women in Latin American History** 3 Same as Hist 335.

- **337 [H] Women in the Ancient World** 3 Same as Hist 337.


- **340 [I] Third World Women and Film** 3 Focus on the intersections of race, gender, class, sexuality, and nation in “third world” women’s films.

- **350 [S] European Women’s History, 1400-1800** 3 Same as Hist 350.


- **363 [G] Women and Music** 3 Same as Mus 363.

- **369 Queer Identities in Contemporary Cultures** 3 Prereq CES 101 or W St 200. Provides a structural critique of heteronormativity and examines L/G/B/T challenges to dominant sex and gender issues in the US.

- **372 [S,D] Native American Women in Traditional and Contemporary Societies** 3 Prereq one of Anth 101, 214, CES 101, 171, or W St 200. Same as CES 372.

- **380 [S] History of Medicine** 3 Same as Hist 380.

- **382 Modern American Literature** 3 Prereq Engl 302. Same as Engl 482.

- **383 [S,D] Sociology of Sexuality** 3 Same as Soc 383.


- **390 [S,D] Gender and Work** 3 Gender and inequality at work including occupational segregation, wage inequality and balancing work and family.

- **391 Seminar in Women’s Studies** 3 Prereq W St 200. Analysis of the intersection of gender, race, class and sexuality through popular cultural texts-film, television, art, literature, performance.

- **398 [H,D] History of Women in the American West** 3 Same as Hist 398.

- **402 Cross-Cultural Gender and Kinship** 3 Prereq Anth 101 or Soc 101. Same as Anth 402.
403 [T] Violence Toward Women 3 Same as Cmr J 403.


406 [T] Women and Work In Global Contexts 3 Prereq W St 200. An interdisciplinary approach to women's labor in global contexts that analyzes differences among women as well as possible shared interests.

407 [T] Biology of Women 3 Prereq Biol 102 or 106; Biol 107 or Chem 105; Chem 106; junior standing; completion of one Tier I and two Tier II courses. Same as Biol 407.

408 [T,D] Introduction to Critical Race Feminism 3 Prereq completion of one Tier I and three Tier II courses; junior standing; CES 101 or W St 200. Studies structural inequalities in the US through historically grounded analysis of social systems, race, gender, and the law.

409 [T] Women Writers in the American West 3 Prereq completion of one Tier I and three Tier II courses. Same as Engl 409.

410 Internship V 1-12 May be repeated for credit; cumulative maximum 12 hours. Prereq W St 200; 300 or 481 with B or better, by interview only. Supervised experience in approved campus or community agencies or projects focusing on women's issues.


421 The American West 3 Same as Hist 421.

425 [T,D] Philosophy and Feminism 3 Prereq 3 hours Phil or W St 200. Same as Phil 425. Cooperative course taught jointly by WSU and UI (Phil 425).


454 [T] La Chicana in US Society 3 Prereq junior standing, completion of one Tier I and three Tier II courses. Same as CES 454.

460 [T] Gender, Race, and Nature in American Culture 3 Prereq W St 200 or 300; completion of one Tier I and three Tier II courses. Exploration of American culture through examination of cultural representations of nature in mainstream and environmental politics.

462 [M] Women and Ethics 3 Prereq Phil 101 or W St 200. Study of gender and feminism and their effect on contemporary ethical theories and issues. Cooperative course taught by WSU open to UI students (Phil 462).

464 Gender and the Media 3 Prereq Com 101 or W St 200. Same as Com 464.

476 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

477 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

481 [M] Theoretical Issues in Women's Studies 3 Prereq W St 200 or 300. Introduction to the field of feminist theory, including classic interdisciplinary methods, and applications of this scholarship to contemporary women's issues.

484 [T,D] Lesbian and Gay Studies 3 Prereq Soc 101, 102, or W St 200; completion of one Tier I and three Tier II courses. Interdisciplinary exploration of issues related to gender and sexuality, explored transhistorically and cross-culturally, including race, class and age differences.


499 Special Problems V 1-4 May be repeated for credit. S, F grading.

**WWAMI Medical Education Program**

[www.wwami.wsu.edu](http://www.wwami.wsu.edu)

Morrill 108
509-335-2602

Director, A. Turner; Professors, R. W. Brosemer, M. L. Pall; Associate Professor, J. M. Mallatt; Assistant Professor, R. Lane Brown; Clinical Assistant Professors, D. M. Conley, C. M. Davitt, P. F. Minter, D. B. Topping; Clinical Affiliation, L. H. Fearn, S. Hall, D. Haynes, M. Hunt; Multicultural Program Coordinator, J. F. Saavedra.

The WSU WWAMI Program is an integral part of the Washington-Wyoming-Alaska-Montana-Idaho (WWAMI) Medical Education Program. Course work is established by the University of Washington School of Medicine. The entire program is taught in concert with the University of Idaho WWAMI Program. Courses are taught on both campuses with faculty from Washington State University and the University of Idaho taking part in each, all WWAMI students being taught as a single class. All WWAMI students are members of the first year class of the University of Washington School of Medicine, and all courses apply to the MD degree granted by that university.

For WWAMI students only. Continuation of Med S 514P. S, F grading.

**Description of Courses**

**Medical Sciences Courses**

**Med S**

505 P Medical Preceptorship I Prereq WWAMI student. First-year medical students gain experience and insight into medical practice situations; students are stationed in physician offices at WWAMI sites. S, F grading.

510 P Microscopic Anatomy 4 (3-3-3) For WWAMI students only. Description and microscopic examination of cell types, tissues, and major organs of the human body. S, F grading.

511 P Anatomy and Embryology I 5 (4-3) For WWAMI students only. Presents formation and 3-dimensional relationships of major structures in the human body; human phenotype examined in dissection laboratory and living anatomy; focus is on trunk anatomy. (Fall only) S, F grading.

512 P Mechanisms in Cellular Physiology 3 For WWAMI students only. Fundamental cell physiology mechanisms: ionic, electrical gradients, sensory receptors, autonomic nervous system, energy metabolism, epithelial transport; gastrointestinal motility and secretions. (Fall only) S, F grading.

513 P Introduction to Clinical Medicine I 1 For WWAMI students only. Instruction in communications skills and interview techniques to form the basis for the eventual doctor-patient relationship. S, F grading.

514 P Biochemistry I 3 For WWAMI students only. Focus on genome information, gene functions, genetic information stored, mobilized, and used, regulation, molecular medicine, genomic therapies. (Fall only) S, F grading.

516 P Systems of Human Behavior I 1 For WWAMI students only. Physical and psychological development of the individual; conceptual systems and models of behavior related to medicine. S, F grading.

520 P Molecular and Cellular Basis of Disease I For WWAMI students only. Cell and tissue response to injury mechanisms of cell injury, inflammatory process, immunology, immunopathology, thrombosis, growth, neoplasia, and clinicopathological correlation. (Spring only) Cooperative course taught jointly by WSU and UI (MedS 520). S, F grading.

522 P Introduction to Clinical Medicine II 2 For WWAMI students only. Communication skills as related to patients and dealing with problem identification and patient history. S, F grading.

523 P Introduction to Immunology 2 For WWAMI students only. Principles of immunology and their relationship to human medicine. S, F grading.

524 P Biochemistry II 2 For WWAMI students only. Continuation of Med S 514P. S, F grading.
526 P Systems of Human Behavior II 2
Continuation of Med S 516 with an emphasis on models of behavior, normality and abnormality related to medicine. S, F grading.

531 P Anatomy and Embryology II 4 (3-3)
Gross anatomy; focus on head and neck anatomy, including skull, pharynx, and larynx; audition and balance. Continuation of Med S 511P. S, F grading.

532 P Nervous System 5 (4-3) Normal structure and function of the nervous system, including the eye. S, F grading.

534 P (521) Microbiology and Infectious Disease 6 (5-3) Biology of microbial pathogens and the mechanisms of pathogenesis; clinical manifestations, epidemiology and general principles of diagnosis, therapy and prevention of infectious disease. S, F grading.

535 P Introduction to Clinical Medicine III 2
(1-2) For WWAMI students only. The screening physical examination. S, F grading.

590 P Introduction to Critical Reading and Evaluation of Medical Literature 1 Prereq WWAMI student. Medical literature for the purpose of primary research, diagnosis and therapeutic and preventative intervention. Cooperative course taught by UI (Med S 590); open to WSU students. S, F grading.

600 P Special Projects or Independent Study V 1-6 May be repeated for credit; cumulative maximum 6 hours. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit S, F grading.
Appendix—Academic Regulations

UNDERGRADUATE ADMISSION REQUIREMENTS

1. GENERAL REQUIREMENTS
   (a) To be eligible for admission to Washington State University, an applicant must be a high school graduate or its equivalent, or have completed a more advanced transferable credential from a regionally accredited college or university (e.g., a transferable Associate of Arts or Associate of Science degree).
   (b) The total number of new students admitted for any one semester will be based on the number of students for whom facilities can be made available.
   (c) Appeal of admission decisions may be made only to the Admissions Subcommittee of the Academic Affairs Committee or their designee.
   (d) Anyone seeking admittance to the Graduate School must follow procedures in the Graduate School Policies and Procedures Manual available in the Graduate School.
   (e) The University reserves a limited number of spaces in the incoming class for the admission of students with extraordinary talents. Refer to the admission of students with extraordinary talents component of the Admissions policies section of the university catalog.

2. FRESHMAN REQUIREMENTS. Freshman applicants are considered for admission based on required high school courses completed, grade point average and the results of the Washington Pre-College Test (WPCT), if taken prior to June 1, 1989, Scholastic Aptitude Test (SAT), or the American College Test (ACT), and personal statement. On the basis of these criteria, the most qualified applicants are offered admission.

Applicants are required to submit a high school transcript showing completion of the following:

- **English:** Four years (including at least one year each of composition and literature).
- **Mathematics:** Three years (one year of geometry and two years of algebra including an introductory component of trigonometry).
- **Science:** Two years (including at least one year of laboratory).
- **Social Science:** Two years (including at least one year of history).
- **Foreign Language:** Two years of the same foreign language, Native American language, or American Sign language.
- **Fine Arts:** One year of fine, visual, or performing arts, or one additional year of academic elective.

Applicants from unaccredited high schools may be required to pass validating examinations.

ADVANCED STANDING (Transfer Applicants)

4. TRANSFER REQUIREMENTS
   (a) Applicants who have completed a transferable Associate’s degree from a regionally accredited post-secondary institution will be admitted as space allows.
   (b) Applicants without a transferable Associate’s degree, but with at least 27 semester (40 quarter) hours of transferable credit from a regionally accredited post-secondary institution normally will be admitted as space allows provided they have at least a 2.5 cumulative grade point average. Applicants whose cumulative grade point average is lower than a 2.5 will have their academic record reviewed more comprehensively to determine admission eligibility.
   (c) Applicants with fewer than 27 semester (40 quarter) hours of transferable credit will be considered for admission if they also meet the freshman requirements. Applicants whose cumulative transfer grade point average is lower than a 2.5 will have their academic record reviewed more comprehensively to determine admission eligibility.
   (d) In evaluating admission credentials of students with transfer work whose cumulative transfer grade point average is below a 2.00, all of the post-secondary transfer credit from a previous institution may be disregarded, provided the work was completed not less than four years before the time of enrollment at Washington State University. Application of this policy is contingent upon the evidence of extenuating circumstances that present a significant probability of future academic success. The Faculty Admissions Subcommittee or its designee in the Office of Admissions will consider these admission requests. After the student has completed 15 semester hours of satisfactory work at WSU, the student may petition to restore the credits previously withheld. All credit earned in courses graded C or better will be considered for restoration and, if approved, only the courses and credit (not grades or grade points) will be restored.

6. TRANSFER CREDIT. (See Rule 114)
   (a) Colleges and universities must be regionally accredited for transfer credit to be awarded.
   (b) Ninety semester hours shall be the maximum allowed by transfer toward a four-year degree, and 120 semester hours shall be the maximum amount allowed by transfer toward a five-year degree.
   (c) The maximum combined lower-division transfer credit allowed from regionally accredited institutions CLEP (College Level Examination Program), AP (Advanced Placement), IB (International Baccalaureate), and military credit shall be 73 semester hours toward a baccalaureate degree irrespective of when those hours were earned.
   (d) Two full years of credit and completion of lower-division General Education Requirements normally will be granted to students who have been awarded the Direct Transfer Associate (AA) degree from a Washington community college. The Associate of Arts—Oregon transfer degree from an Oregon community college guarantees completion of the lower-division General Education Requirements, but does not guarantee junior standing or 60 semester credits. Certain approved Associate’s degrees from Arizona, California, Hawaii, and Idaho may also be considered to have fulfilled the lower division GERs for graduation, but do not guarantee junior status (60 semester credits). For details on specific degrees consult the Office of Admissions.
   (e) Students who have completed at least 70 transferable quarter credit hours toward completion of an approved AA degree may complete the Direct Transfer Associate (AA) degrees from a Washington or Oregon two-year college after their initial enrollment at WSU.
   (f) Students who have completed the Associate of Science Transfer Degree (AST) from a Washington Community College will receive the same priority consideration for admission to the baccalaureate institution as they would for completing the direct transfer associate degree and will be given junior status. Additional general education, cultural diversity, and world language requirements, as required by Washington State University, must be met prior to the completion of a baccalaureate degree. Students are responsible for checking specific major requirements in the year prior to transferring.
   (g) Completion of lower-division General Education Requirements will be granted to students, who have completed all of the lower-division General Education Requirements at another regionally accredited Washington baccalaureate institution, provided the sending institution so certifies.

9. GRADE POINTS REQUIRED. Students entering with advanced standing must earn twice as many grade points for graduation as the number of hours which they have enrolled in this or any other institution.

14. CREDIT FROM INSTITUTIONS WITHOUT REGIONAL ACCREDITATION. Students who have taken college-level, academic work at institutions that are not regionally accredited but are nationally accredited may petition for transfer of appropriate credits. Petitions may be filed after the student has completed a minimum of one semester (minimum of 15 credits) of satisfactory work at Washington State University. To receive credit, a student must have earned a minimum grade of C in the course for which he or she is requesting transfer credit. Petitions are reviewed and approved first by the Department Chair and
then by the College Dean from the unit that offers courses in that discipline. The Director of General Education reviews and approves petitions in cases where there is no equivalent WSU unit. Following approval by the Department and College (or Director of General Education), the petition is then forwarded to the Chair of the Admission Subcommittee for review and approval. Students may contact the Office of Admissions for more information.

15. CREDIT BY EXAMINATIONS. Subject to standards established in consultation with academic departments concerned, credit may be granted to entering or enrolled undergraduate students via various means including external examinations, institutional examinations, and approved military service schools. WSU does not accept credit by exam granted by other institutions. Credits by examination shall yield no grade points. Such credits may partially fulfill General Education Requirements for graduation. External examinations will include but not be limited to:

   Advanced Placement (AP) Program examinations of the College Entrance Examinations Board; general and subject College Level Examination Program (CLEP); and the Washington Pre-College Test Program (WPCT).

   (a) Advanced Placement Program. Credit for AP examinations will be granted in an amount equal to the 100-200-level course or courses in the particular discipline tested, as approved by the specific academic department. The acceptable score for receiving credit is published online at http://www.wsu.edu/future-students/admission/advanced-placement.html.

   (b) College Level Examination Program (CLEP)

      (1) Students with university junior standing (60 semester credits or more) are not eligible for credit through CLEP examinations. Contact the Office of Admissions for specifics.

      (2) General and Subject Examinations-Credit for CLEP will be granted if the examination is passed with scores established by the department concerned in consultation with the Director of Admission. Credit will be granted for scores at the 50th percentile or above. Credit will be granted for the comparable Washington State University course, or elective credit may be granted. Not more than 6 semester hours of credit will be granted for each examination.

   (c) Challenge Examinations. Matriculated students currently registered at Washington State University, with permission of their advisor or department chairperson and of the chairperson of the department offering the course, may take challenge examinations for university credit in courses in which they are not registered. Students may not take challenge examinations in courses which they have audited, or in which they have received a final grade. Upper-division students may not receive credit by challenge examination in lower-division courses in their major field. Undergraduate students may not receive credit by challenge examination in any course prerequisite to a course in which they are enrolled or have received a final grade. The maximum credit for challenge examinations is 30 semester hours unless permission is obtained from the student's academic dean. The fee for all challenge petitions is $261 per course.

   (d) Military Credit. Credit will be granted for satisfactory completion of:

      (1) Military service schools in the amount recommended by the American Council of Education in the publication, Guide to the Evaluation of Educational Experiences in the Armed Forces.

      (2) United States Armed Forces Institute correspondence courses (under the rules applicable to other correspondence work).

      (3) Dantes Credit: Elective credit for DANTES Subject Standardized Tests (DSSTs) will be granted for college-level academic subjects (non-vocational/technical courses) using the minimum score and credit amount recommendations of the American Council on Education.

      (e) Peace Corps and Volunteers in Service to America (VISTA) Credit for training in the Peace Corps or VISTA will be granted for having completed specific courses, under regular catalog course numbers, as shown on a regular transcript from an accredited college or university.

      (f) Other Test Programs. Credit for other testing programs such as the Washington Pre-College Test Program and WSU departmental placement examinations will be granted in accordance with policies established by the university and academic departments.

AUDITING CLASSES

20. PERMISSION TO AUDIT. An auditor is a class visitor permitted on a space-available basis to observe class discussions but not take examinations or consume the instructor's time. Attendance in class beyond three visitations requires official approval on the Request for Permit to Audit card. Students may seek permission, after the start of classes, to audit a lecture course by securing the approval of the class instructor. Those wishing to audit or change from credit to audit must pay the appropriate fee and submit the signed audit card to the Office of theRegistrar before the end of the fourth week of instruction in the semester. An enrollment change from audit to credit is limited to the first two weeks of instruction. A maximum of two audits are allowed for any semester or term. A registration fee per audit hour is charged for any semester or term for other than regularly enrolled full-fee-paying students. Senior citizens are exempt from this fee under the provisions of RCW 28B.15.540, provided the prescribed eligibility requirements are met. Personnel who have received authorization for the faculty/staff fee waiver are exempt from the audit fee up to 6 hours (including audits) in any one semester or 4 hours (including audits) in the summer session. Said limitation includes any combination of credit and audit hours. Audit fee is non-refundable.

21. NO CREDIT FOR AUDITING. No university credit will be allowed for auditing courses, nor may students apply for or take special examinations for university credit in courses which they have audited. Students may not take challenge examinations (see Rule 15c) in courses they have audited. (Audit enrollments will be recorded on the student's permanent record by listing the departmental prefix, course number and the statement, “OFFICIAL AUDIT NO CREDIT.”)

23. MAKE-UP HOURS FOR UNIVERSITY HOLIDAYS. The presence of our one-day holidays in the academic calendar leads to fewer days of instruction for certain classes. Instructors have authority to require students to make-up lecture and laboratory contact hours, including scheduling such hours on evenings and Saturdays, whenever university holidays create unequal opportunities and time demands for students enrolled in the course. The make-up hours for a given course or section must be identified in the WSU Schedule of Classes and also in the course syllabus.

CLASS STANDING OF STUDENTS

25. CLASS STANDING. Freshman Standing—below 30 semester hours; Sophomore Standing—30 to 59 1/2 hours; Junior Standing—60 to 89 1/2 hours; Senior Standing—90 and above hours.

CREDIT

27. CREDIT DEFINITION. Academic credit is a measure of the total minimum time commitment required of a typical student in a specific course. For the WSU semester system one semester credit is assigned for a minimum of 45 hours. The expected time commitment may include: 1) time spent in scheduled course activities organized by an instructor (lectures, discussions, workbooks, videotapes, laboratories, studios, fieldwork, etc.); 2) time spent in group activities related to course requirements; and 3) time spent in reading, studying, problem solving, writing, and other preparations for the course. The minimum in-class time commitment, based on a fifteen-week semester and a traditional format, should follow these guidelines: 1) lecture—one hour of lecture per week for each credit hour; 2) laboratory—three hours of laboratory per week for each credit hour; 3) studio—two hours of studio work per week for each credit hour; 4) ensemble—four hours of ensemble work per week for each credit hour. The minimum time commitment for independent study is three hours of work per week for each credit hour. Courses taught in different time frames than the fifteen-week semester or in a different format need to define how the time commitment leads to the achievement of stated course goals. Achievement of course goals may require more than the minimum time commitment.

28. HIGH SCHOOL STUDENTS. High school students may enroll at Washington State University provided they are admitted to the university and pay the appropriate fees. Such enrollments may be for high school or university credit or both. For fall and spring semesters, all eligible high school students enroll through Running Start. For Summer Session, special fees may apply.
29. WORK FROM HIGH SCHOOLS AND VOCATIONAL BUSINESS COLLEGES. No university credit shall be given for work from high schools or vocational business colleges. Recognized exceptions are College Board Advanced Placement (AP) and International Baccalaureate (IB), for which official score reports are required to award credit. Students are awarded transfer credit for Running Start (RS), College in the High School (CHS) and similar programs only when official college transcripts are presented. Credit is not granted on the basis of the high school transcript.

31. CREDIT TO HIGH SCHOOL STUDENTS FOR COURSES COMPLETED PRIOR TO HIGH SCHOOL GRADUATION. Washington State University encourages students to complete rigorous college preparatory courses in high school, or to take college courses while in high school if they have adequate preparation. In some cases college credit may be awarded when consistent with the following criteria.

(a) High School Courses: Some high schools may offer instruction at the college level, and when consistent with university and academic department policies, college credit will be awarded if student achievement is validated by an approved national examination such as Advanced Placement or International Baccalaureate, or a review or examination administered by the university.

(b) Running Start Program: (1) Credit will be awarded for college courses taken prior to high school graduation when such courses are completed through the state of Washington's Running Start Program.

(2) Courses offered by Washington State University to high school students participating in Running Start will have an enrollment of at least seventy percent of regularly admitted students in each course section.

(c) Other Courses: College credit may be awarded for courses taken in high school when consistent with the following conditions:

(1) The course must also be currently available on the campus of the regionally accredited college or university and must be listed in the college or university catalog. The course, regardless of setting, must use the college or university curriculum.

(2) Students interested in credit must register and pay fees at the beginning of the term and would be subject to the same grading and tuition refund policies as students on the campus of the regionally accredited college or university.

(3) The faculty teaching the course in high school must carry a regular or adjunct faculty appointment at the regionally accredited college or university.

(4) The students taking the course in the high school must be assessed and graded in the same manner as students taking the course on the campus of the regionally accredited college or university. Student work, whether completed for the course offered on-campus or at the high school, must be graded and evaluated by the same standards.

34. REPEAT COURSES. Students may ONLY repeat a course in which they have received a grade of C- or below, a withdrawal (W), or when a course may be repeated for additional credit. Students may enroll more than once in the same course in any given term (fall, spring, or summer) provided that the particular periods of enrollment do not overlap and that other conditions for allowed repeats are met.

a. Repeating courses graded C- or below. To improve the cumulative or resident grade point average, a student may only repeat courses in which a C- or below was received. When such a course is repeated, only the last grade contributes to the grade point average and total hours earned. Students may only repeat a course graded C- or below one time at WSU during fall or spring semesters. Additional repeats are allowed from another institution or at WSU during summer terms or by special permission of the academic unit offering the course. However, the series of repeats and grades is retained on the student's academic record.

1. Only courses identified as acceptable equivalents according to the appropriate department, the Transfer Guide, or the Admissions Office are treated as repeats. If courses deemed equivalent in content differ in credit hours, the credit hours of the repeat course supersede the credit hours of the original course.

2. Once a student has graduated from WSU, repeated courses cannot change the pre-degree transcript.

b. Repeating for additional credit.

1. Some courses have been approved for repeat credit, i.e., the student may re-enroll in the course during a subsequent semester and credit may be accumulated. Such courses are designated in the WSU catalog as “May be repeated for credit” and will list the maximum credit limitation.

2. Courses which have been approved for repeat credit, such as topics, may offer multiple sections of a course during any one semester. Students may enroll in more than one section of these courses in any one term provided that the specified particular topics and titles differ; the repeat credit approval applies only to re-enrollment in a subsequent semester.

UNDERGRADUATE ACADEMIC DEFICIENCY

35. Washington State University expects students to maintain academic standards of excellence and make satisfactory academic progress toward their degree objectives. Undergraduate students are in good academic standing if both their current WSU semester and cumulative grade point averages are 2.00 or above. Students not meeting the criteria above are considered academically deficient.

38. An undergraduate (undeclared or certified major) who at the end of any one semester has failed to maintain a 2.00 semester and/or cumulative grade point average is considered academically deficient. The student must complete an application and an interview through the Student Advising and Learning Center, on the Pullman campus, the Distance Degree Program or designated office on other campuses. Reinstatement will be considered based on the application and interview. A certified major who has been interviewed and reinstated may be decertified by the department.

39. An undergraduate student who, at the end of any two semesters at WSU, has failed to maintain a 2.00 semester or cumulative grade point average will be dismissed from the university. For process see Rule 40.

40. Students who are dismissed from the University are required to remain out of WSU for at least one academic year. All students seeking reinstatement must provide, as part of the application for readmission, documentation that demonstrates improved academic performance at the college level and/or a readiness for academic success at WSU. All academic coursework during the time away from WSU is required to be documented and transcripts submitted. Dismissed students who apply for reinstatement after one semester will be granted reinstatement only when unusual extenuating circumstances are present. In all cases, written documentation to support the application is required.

41. An undergraduate student who has been reinstated after becoming deficient under Rule 38 or 39 will be on academic probation. The specific conditions of enrollment for students who are on official probation will be determined by the interviewer or Review Board. Students on probation who fail to comply with the conditions of their probationary enrollment will be dismissed from the University.

42. Students enrolled in professional programs (e.g., clinical courses in nursing) that involve human health care may be subject to more stringent requirements in grading, repeating course work, and retention provided the more stringent requirements are approved through Faculty Senate channels and are published and are made available to students prior to certification. Students are referred to the nursing and pharmacy offices for specific requirements.

43. Former WSU students, dismissed under any academic deficiency rule, who have not been enrolled at WSU for four years or more may request at the time that they apply for reinstatement that all previous WSU work be disregarded. This includes all credits and grade points earned. The student's transcript will be marked to indicate that the previous work is not considered as credit earned. After completion of 15 semester hours of course work with a cumulative grade point average of 2.0 or higher at WSU, the student may petition to restore credits earned in courses graded C- or better. If approved, only the courses and credit, not grades or grade points, will be restored. Requests for reinstatement and petitions for credit restoration for former WSU students will be considered by the Review Board in Student Advising and Learning Center on the Pullman campus, the Distance Degree Program or designated office on other campuses.

Appendix—Academic Regulations
CONDUCT

45. Washington State University is guided by a commitment to excellence embodied in a set of core values. The University aims to create an environment that cultivates individual virtues and institutional integrity in the community. The mission of the University is supported when students uphold and take responsibility for the full scope of these values. The University’s core values are identified in its strategic plan. Under the terms of enrollment, students acknowledge the University’s authority to take disciplinary action for conduct on or off university property that is detrimental to the university’s core values. Students who violate the university Standards of Conduct are subject to discipline, which may include temporary or permanent removal from the University. (See the Standards of Conduct for Students.)

ENROLLMENT, REGISTRATION, DROPPING COURSES, AND WITHDRAWALS

47. PLACEMENT TESTS. All students will be required to take the regulation placement tests as a prerequisite to enrollment in appropriate courses.

50. PASS, FAIL GRADING OPTIONS. Pass, fail options are available for undergraduate and graduate students. The advisor’s approval is required for undergraduates. No courses designated as meeting General Education Requirements for Graduation may be taken pass, fail by any undergraduate. No more than two courses may be taken on a pass, fail basis during any given semester. Two courses is the limit for summer session. A total of six courses may be taken on a pass, fail basis by students initiating and completing work for a baccalaureate degree at Washington State University. Students in the College of Veterinary Medicine with advisor approval may enroll for a total of six courses in the professional curriculum on a pass, fail basis, subject to the regulations listed above. University Honors College courses may be taken on a pass, fail basis only with the permission of the Honors College Dean. Class 5 (except those working on a second baccalaureate degree) and Class 6 (graduate) students are eligible to take courses on a pass, fail basis, but such work cannot be in the student’s official degree program or used for removal of a specific undergraduate deficiency. Credit hours earned under pass, fail are counted toward assistantship minimum hour requirements. There is no limit on the number of hours a graduate student may take on a pass, fail basis. 

Allowances for transfer students are as follows:

Transfer status upon entering WSU—Pass, fail Allotment
1-44 credits six courses
45-59 credits five courses
60-74 credits four courses
75-89 credits three courses
90 and above credits two courses

A student may change a pass, fail enrollment to a regular letter-graded enrollment, or vice versa, during the first three weeks of classes. After the third week and through the last day of instruction in a semester (end of fifteenth week), only a pass, fail enrollment can be changed to a letter-graded enrollment. The P (pass) grades earned by pass, fail enrollees will not be included in computing the GPA; however, F grades earned by pass, fail enrollees will be included in GPA computations. Departments and programs may deny their majors permission to take, on a pass, fail basis, courses in their major field or courses needed to meet departmental requirements. Departments have the prerogative of requesting, from the Office of the Registrar, the letter grade for courses a prospective major has taken on a pass, fail basis. Departments and programs may refuse to accept courses needed to meet the above requirements if the courses were completed on a pass, fail basis before the student was accepted into the department or program.

52. PREREQUISITE COURSES. All prerequisites shall be satisfactorily completed before the student may register in a course. The instructor may waive the prerequisite in the case of a student who has demonstrated competence or who has had academic experience equivalent to that represented by the prerequisite.

53. CERTIFICATION OF A MAJOR. Upon completion of 24 semester hours, and meeting department, program, or school certification requirements, a student may certify in an academic major with the approval of the appropriate academic department, program, or school, and upon notification to the Student Advising and Learning Center. Departments, programs, or schools may require additional criteria beyond the minimum 24 hours for certification and a grade point average higher than the minimum of 2.00. Typically, students with 60 or more semester hours should be certified into a major. Consult the catalog for specific certification requirements.

54. MINOR OR SECOND MAJOR. A student who has completed 60 semester hours and is certified in a major may certify a minor or second major with the approval of the department offering the second major or minor. The student should consult with the department concerning hours and grade point requirements and an approved schedule of studies to meet such requirements.

A second major requires completion of departmental requirements for the major exclusive of General Education Requirements.

An undergraduate minor requires a minimum of 16 semester hours, of which must be in upper-division work and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. The Registrar’s Office will be responsible for checking the minimum university requirements of the minor as defined above. Upon completion of the requirements, the department will notify the Registrar’s Office, and the minor or second major will be posted on the student’s permanent record (transcript).

55. CHANGE OF MAJOR. A student may change from one department to another only on approval of the chairpersons of the departments or deans concerned.

56. DECERTIFICATION AND RECERTIFICATION. A certified major who becomes academically deficient under Rules 38 or 39 and is decertified by the major department or program will be eligible to recertify, on a space-available basis, when the cumulative and major grade point averages are at or above the minimum level required for certification into the department.

A certified major who falls below the minimum departmental requirements (approved by Faculty Senate) may be decertified by the department after two semesters of falling below that minimum. The department must notify the student at the end of the first semester and establish conditions in writing that must be met the second semester. If conditions are not met at the end of the second semester, documentation must be provided to the Student Advising and Learning Center along with the request to decertify a student.

57. STUDENT PETITIONS FOR EXCEPTIONS TO ACADEMIC CALENDAR DEADLINES AND WITHDRAWAL LIMITS. Students may, with the payment of a service fee, petition for exceptions to the academic calendar deadlines (e.g., withdrawal after the deadline) or petition for withdrawal from an individual course after the student has used the maximum number allowed. Petitions are considered only in the case of extraordinary circumstances such as a medical emergency and require supporting documentation. Withdrawal also may be granted for a course if the withdrawal is recommended by the Director of Health and Wellness Services, the Director of Counseling Services, the academic dean of the unit in which the course is taught, or the academic Vice Chancellor or his or her designee because of illness or other documented extenuating circumstances.

Undergraduate and professional students may petition through the Registrar’s Office or Office of Student Services. Graduate students may petition through the Graduate School. Requests for exceptions to the calendar deadlines must be made within two years of the date of enrollment in the course. Petitions for exception to the withdrawal limit must be filed by the end of the term in which the course was taken.

58. PERMISSION TO REGISTER LATE. A student may not register after the second week of any session, except with the permission of the Registrar.

61. LATE SERVICE FEE. A student who does not enroll before classes start or pay fees on or before the due date will be assessed a service charge. A charge of $100.00 will be assessed to late registrations that occur after the tenth day of classes. Late payment fees will be assessed those who pay tuition and fees after the due dates.
66. ADDING A COURSE. Students may add course enrollments through the 5th day of the semester. (NOTE: If the course is being added pass, fail the approval of the student’s faculty advisor is also required.) After the 5th day of the semester, students may add course enrollments only with the permission of the instructor.

67. DROPPING A COURSE. A student may drop a course without record up to the end of the 30th day of the semester in which the course is offered or according to a prorated schedule for shorter academic terms.

68. WITHDRAWAL FROM A COURSE BETWEEN THE 5TH WEEK AND THE END OF THE 9TH WEEK. A student may, with the payment of a service fee withdraw from a course between the 5th week and the end of the 9th week with a grade of W. For undergraduates who enter WSU in fall 1998 or later, the maximum number of WSU withdrawals is 6, not counting withdrawals that result from the cancellation of enrollment. For undergraduates who enter WSU in the fall 2004 or later, the maximum number of WSU withdrawals is 4, not counting withdrawals that result from the cancellation of enrollment. After the 4th or 6th withdrawal, a student may, in exceptional circumstances, submit a petition through the Registrar’s Office for an exception to the withdrawal limit. The petition must be filed by the end of the term in which the course was taken. If an undergraduate student uses a withdrawal during the semester and then must completely cancel enrollment for the semester, the previous withdrawal will not count toward the total of 4 or 6.

69. WITHDRAWAL FROM A COURSE AFTER THE 9TH WEEK OF A SEMESTER. Withdrawal from a course after the 9th week of a semester is available under the following conditions:
(a) From the end of the 9th week through the last day of instruction, undergraduate students are eligible to use up to two uncontested course withdrawals during their undergraduate careers, regardless of the number of undergraduate degrees earned.
(b) The grade shall be marked W, and the service fee shall be mandatory.
(c) For undergraduates who entered WSU in fall 2004 or later, the maximum number of WSU withdrawals (including the two uncontested withdrawals) is 4, not counting withdrawals that result from the cancellation of enrollment. For undergraduates who entered WSU in fall 1998 through summer 2004, the maximum number of WSU withdrawals (including the two uncontested withdrawals) is 6, not counting withdrawals that result from the cancellation of enrollment. Only two of these withdrawals can come after the 9th week of the semester.
(d) If an undergraduate student uses a withdrawal during the semester and then must completely cancel enrollment for the semester, the previous withdrawal will not count toward the total of 4 or 6.

A student may, in exceptional circumstances, submit a petition through the Registrar’s Office for an exception to the withdrawal limit. See rule 57.  

70. Cancellation of Enrollment. Students who wish to withdraw from the institution and disenroll from all of their classes initiate the cancellation through the Office of the Registrar at WSU Pullman or the Student Services Office at WSU Spokane, WSU Tri-Cities or WSU Vancouver, or through the Distance Degree Programs Office. Students seeking to cancel their enrollment after completing one or more courses may petition for an exception to the academic calendar deadlines in the event of extraordinary circumstances (see Academic Regulation 57).
(a) Students canceling their enrollment during the first four weeks of the semester will have their permanent records marked “withdrawn (date).” (Individual course enrollments will not be recorded.)
(b) Students canceling their enrollment after the fourth week through the last day of instruction (end of the 15th week) will have their permanent records marked “withdrawn (date),” and a grade of W will be recorded for each course enrollment.
(c) Students on academic probation during the semester of their cancellation must obtain permission of the Student Advising and Learning Center to re-enroll.

ATTENDANCE

71. ADMISSION TO CLASSES. Instructors shall not permit a student to be enrolled in a class or admit a student more than three times as a visitor without an official enrollment notice.

72. CLASS ATTENDANCE DURING THE FIRST WEEK TO ENSURE ENROLLMENT. Students who have not attended class and laboratory meetings during the first week of the semester may be dropped from the course by the department. Students should not assume that they have been dropped without verification from the department or Registrar’s Office. Students who believe that they have extenuating circumstances which prevent their attendance during the first week should notify the Office of Student Affairs or Student Services. That office will notify instructors of the absence and the reason for it. Instructors shall determine whether to accept the excuse, waive the absence, and permit make-up work.

73. ABSENCES. Absences impede a student’s academic progress and should be avoided.
(a) UNIVERSITY SPONSORED. Any student who is required to participate in off-campus, university-sponsored activities such as field trips, musical performances, judging teams, intercollegiate athletic events, etc., should obtain an official Class Absence Request form from the faculty or staff member supervising the off-campus activity. The form must contain specific information concerning the activity and date, be signed by the supervising faculty or staff member, and be submitted by the student at least one week in advance to the individual instructors of the student’s classes. It is requested that a student not be penalized for absence from class provided a properly signed Class Absence Request form has been filed with the instructor prior to the absence. These university sponsored absences are subject to an instructor’s attendance policy and are not intended to imply additional acceptable absences. In all instances, it is the student’s responsibility to make up all work missed. Problem cases should follow the Academic Complaint Procedures, Rule 104.
(b) MILITARY SERVICE MEMBERS. Students who are members of the National Guard or a reserve branch of a military service are occasionally required to miss class for weekend drills, active duty, and related responsibilities. In such a case, instructors should not penalize the student for the absences and should work with the student to make-up the missed assignment or examination. In each instance, it is the responsibility of the student to inform the instructor of the duty before the absence and complete the missed work as soon as reasonably possible.
(c) OTHER EXCUSED ABSENCES. Students must sometimes miss examinations or other academic obligations affecting their grades because of illness, personal crises, mandated court appearances, parental responsibilities, and the like. As long as such absences are not excessive, it is recommended that the instructor provide and document reasonable accommodation. The instructor may require the student to submit a written explanation of the absence, but written excuses from health care personnel should not be required since these requests frequently put the health care personnel in untenable positions. A student who is dissatisfied with the instructor’s accommodation may follow the Academic Complaint Procedure, Rule 104. It is recommended that the instructor explain the procedures for excused absences early in the semester, preferably in a written syllabus distributed to all students in each class. Once announced, these procedures should be scrupulously followed unless extraordinary circumstances require an exception. Students who attempt to gain advantage through abuse of this policy (e.g., by providing an instructor with false information) may be referred to the Office of Student Affairs for disciplinary action.

EXAMINATIONS

74. FINAL EXAMINATIONS WEEK. The final examination week for each fall and spring semester will span five days, from the Monday through the Friday immediately following the fifteenth week of the semester. Special examinations will be scheduled for the Saturday following the Friday of final examination week. Summer Session final exams will be confined to the designated class meeting times scheduled for the course or lab.

75. FINAL EXAMINATION SCHEDULE. The final examination schedule will be determined before the start of each semester and published in the semester schedule of classes by the Registrar based on previous enrollment for that semester. After publication, the schedule cannot be altered except as provided.
76. SCHEDULING ALL COMMON MORNING/EVENING EXAMS. Undergraduate (100-400-level) courses having an enrollment of at least two percent of the total student body or courses with multiple lecture sections may schedule more than three examinations each semester at the periods of 7:00 to 8:00 a.m., 6:00 to 7:15 p.m. and 8:30 to 9:45 p.m., Monday through Friday, with the exception of Monday morning and Friday evening. The actual test-taking time may not exceed the regularly scheduled lecture time (50 or 75 minutes)—however, instructors may require that students arrive up to 15 minutes early to check in. If permission is to be granted for a large group exam, all sections of the course must give the exam on the same day and within the same time block unless given during the regularly scheduled class time. One class lecture period shall be omitted to compensate for each hour of examination. A class lecture period lost to Labor Day, Veterans Day, Martin Luther King, Jr. Day, and/or Presidents Day holiday(s) may be counted toward this compensation for an evening exam. Proposed examination dates must be submitted to the Registrar’s Office no later than the first week of each semester. (NOTE: Officially approved and scheduled night examinations have priority over all other academic and non-academic evening activities.)

77. SPECIAL PERIODS FOR FINAL EXAMINATIONS. During examination week time will be allowed to large courses for special examinations of the entire group. The privilege of giving such special examinations is necessarily limited in terms of periods available for such tests. The courses having the greatest number of students will be given first opportunity to utilize the special examination periods available.

78. THREE OR MORE IN ONE DAY. During final examination week, if the scheduled arrangement results in students having three or more examinations scheduled for any one day, any one of their instructors is authorized to excuse the students from the regularly scheduled examination and give a final examination to the students during the special exams time blocks.

In cases of difficulty in arriving at a solution, students shall refer the matter to the chairpersons of their departments or to their academic advisors.

79. CLOSED WEEK. No examinations or quizzes (other than laboratory examinations, make-up examinations and make-up quizzes) may be given during the last week of instruction.

80. NO EARLY EXAMINATIONS. A student will not be granted special examinations for the purpose of leaving the institution before the close of the semester.

81. LENGTH OF EXAMINATIONS. All regular examinations in undergraduate courses during the regular fifteen weeks of instruction, except for common morning/evening examinations and take-home examinations will be confined to the designated class meeting times scheduled for lecture, studio, laboratory, independent student or ensemble. Summer Session exams will be confined to the designated class meeting times scheduled for the courses or lab.

82. ACCOMMODATIONS OF RELIGIOUS OBSERVANCES IN THE ADMINISTRATION OF EXAMINATIONS. Washington State University is committed to providing people of diverse religious backgrounds access to education. In addition, law requires reasonable accommodation of religious beliefs and practices. Because religious observances do not always conform to state and university holidays, tests or examinations that fall on these religious observances require reasonable accommodation. The university will provide reasonable accommodation consistent with the fair, efficient and secure administration of its programs. When tests or examinations fall on one or two days objectionable to a student because of religious beliefs, the student shall provide the instructor written notice 14 calendar days prior to the holiday. The written notice shall specify the date(s) and the reasonable accommodation requested. If the request appears to be made in good conscience, the instructor shall make alternate arrangements for administration of the examination or test, considering the integrity of the testing process and fairness to all the students. The instructor shall inform the student of the decision in writing within 7 calendar days of the receipt of the request. Any student who believes that she or he has not been appropriately accommodated under this policy may seek review of the decision by sending a written request to the chairperson of the department offering the course, as soon as possible and no later than 7 days after learning of the instructor’s decision. After the chair’s decision, the student or the instructor may appeal to the dean’s office. Appeals to the dean’s office must be presented in writing within 7 calendar days of the chair’s decision. The decision of the dean or associate dean shall be made within 7 calendar days and is final. The University Ombudsman is available at any stage for advice or assistance in resolving requests for accommodation. Students should understand that fairness in the examination process is an important consideration in the educational process and that they do have a duty to cooperate in making alternate arrangements.

83. ACCOMMODATION OF DISABILITIES IN THE ADMINISTRATION OF EXAMINATIONS. Washington State University is committed to providing access to education for all of its students. In addition, federal law states that academic requirements must be modified on a case-by-case basis to afford qualified students with handicaps an equal educational opportunity. The nature of certain disabilities may necessitate accommodation of these disabilities in the administration of exams. It is the policy of the university to provide reasonable accommodation consistent with the fair and secure administration of its programs.

A student with a disability who may require special accommodation should contact the Student Disability Resource Center (DRC) when he or she arrives on the WSU Pullman campus. On the branch campuses a student should contact the Office of Student Services. A file documenting the disability will be established, and an accommodation form initiated. The instructor may ask for verification of a disability when a student requests an accommodation for an examination. The Office of Student Services or DRC provides the disabled student with a disability with an accommodation form verifying a disability and specifying the appropriate testing accommodation designed to fit the individual needs of that student. If the instructor disagrees with the arrangements as presented in the form, the instructor and/or student should seek the assistance of the DRC, department chair, cognizant dean or Vice Provost for Academic Affairs, in that order. The student and instructor may also contact the University Ombudsman or Center for Human Rights.

88. PENALTY FOR ACADEMIC DISHONESTY. Cases of academic dishonesty shall be processed in accordance with the Academic Integrity Policy, as printed in the Student Handbook and the Faculty Manual and as available from the Office of Student Affairs.

89. FINAL GRADE SUBMITTAL. Final grades will be submitted to the Registrar’s Office by 5:00 p.m. on the second working day after the close of finals week. (Final grades for Summer Session will be submitted to the Registrar’s Office by 5:00 p.m. on the second working day following the last day of Summer Session. Departments may be requested to submit final grades for summer courses earlier than the official submission deadline to facilitate grade reporting to students.)

GRADEs AND GRADE POINTs

90. GRADES AND GRADE POINTs. Washington State University uses letter grades and the four (4) point maximum grading scale. The grade A is the highest possible grade, and grades below D are considered failing. Plus (+) or minus (-) symbols are used to indicate grades that fall above or below the letter grades, but grades of A+ and D- are not used. For purposes of calculating grade points and averages, the plus (+) is equal to .3 and minus (-) equals .7 (e.g., a grade B+ is equivalent to 3.3 and A- is 3.7). A student’s work is normally rated in accordance with the following definitions:

90a. A. Student work demonstrates consistently excellent scholastic performance; thorough comprehension; ability to correlate the material with other ideas, to communicate and to deal effectively with course concepts and new material; reliability in attendance and attention to assignments.

90b. B. Student work demonstrates superior scholastic performance overall, reliability in attendance, and attention to assignments; may demonstrate excellence but be less consistent than the work of an A student.

90c. C. Student work demonstrates satisfactory performance overall, as well as reliability in attendance, and attention to assignments.

90d. D. Student work demonstrates minimal, barely passing performance overall; limited knowledge of subject matter.
90e.  F.  Student work demonstrates unsatisfactory performance and comprehension or unfulfilled requirements. The grade is failing.

90f.  S.  (Satisfactory.) Grade given upon satisfactory completion of courses numbered 499, 600, 700, 702, 800, special examinations (Rule 15) and other courses duly authorized for S, F grading by the Faculty Senate. (Courses approved for S, F grading are footnoted in the Schedules of Classes.) A, S, or F grades only are used to report physical education activity grades. S, M (marginally satisfactory), F grades only are used to report grades for designated courses within the College of Veterinary Medicine. Courses approved for S, F grading may also be graded S at midterm indicating satisfactory progress.

90g.  P. (Passing.) A satisfactory grade for a course taken under the pass, fail Grading Option. Instructors will turn in regular letter grades for all students enrolled in courses under the pass, fail option but grades will appear on the student’s permanent record as P (Passing) or F (Failure).

90h.  I.  (Incomplete.) The term is used to indicate that a grade has been deferred. It is for students who for reasons beyond their control are unable to complete their work on time. All outstanding incomplete work (including grades of I, X, and blank/no grade) must be completed and posted to the official transcript prior to the conferral of the undergraduate or professional degree. It is strongly recommended that students who are granted an Incomplete limit their total number of credits to 18 credits (including credits for the Incomplete course and any new courses) during the semester when they are finishing an Incomplete. Undergraduate or graduate students who receive an I grade in an undergraduate course (100-499) have up to the end of the ensuing year to complete the course, unless a shorter interval is specified by the instructor. If the incomplete is not made up during the specified time or the student repeats the course, the I is changed to an F. (See Rule 34.) Faculty are required to submit an Incomplete Grade Report (IGR) to the departmental office with every I given. The IGR must specify conditions and requirements for completing the incomplete, as well as any time limitations less than one year.

90i.  W.  This is the term to be used if the student has filed, in the Registrar’s Office, official notice of a withdrawal from the course prior to the end of the 9th week, or withdrew in accordance with Rule 69, or withdrew from the university in accordance with Rule 70.

90j.  X.  Denotes continuing progress toward completion of special problems, research, thesis, doctoral dissertation (i.e., 499, 600, 700, 702, 800), or flexible enrollment courses; X grades are converted to S or to a letter grade upon satisfactory completion. All outstanding incomplete work (including grades of I, X, and blank/no grade) must be completed and posted to the official transcript prior to the conferral of the undergraduate or professional degree. An X grade may also be used when no final grade is reported due to instructor’s illness or absence.

92.  GRADE RECORDS. Class grade records (the records from which final grades for a given class are determined) are university records which must be maintained for five years after the end of the term. Department chairs or directors are responsible for identifying appropriate storage location, which may include the instructor’s campus office. Both the chair or director or their designees and the instructor shall have ready access to these records.

93.  RETENTION OF FINAL EXAMINATIONS, FINAL PROJECTS, AND FINAL PAPERS. Final examinations, final projects, and final papers are university records which must be maintained for one year after the end of the term, unless they are returned directly to the student. Department chairs or directors are responsible for identifying appropriate storage location, which may include the instructor’s campus office. Both the chair or the director or their designees and the instructor shall have ready access to these final examinations, final projects, and final papers.

98.  CORRECTION OF GRADE ERRORS. An instructor may not change a grade after it has been filed with the Registrar, except in the case of clerical error, which the instructor may correct by so certifying to the Registrar. Such change must be approved (signature required) by the chairperson of the department in which the course was offered. Grade corrections must be processed within one year of the end of the term for which the original grade was given. In extenuating circumstances, exceptions to the one-year limit for correction of grade errors may be considered by petition to the Registrar’s Office.

99.  GRADUATE STUDENT GRADES. On a program leading to an advanced degree, graduate students must attain a minimum grade point average of 3.00 on their graduate programs and a minimum grade point average of 3.00 in all 300-400-level and graduate courses. No grade below C is accepted in any course for graduate credit.

100.  THE GRADE POINT SYSTEM

A  provides 4.0 grade points per credit hour.
A- provides 3.7 grade points per credit hour.
B+ provides 3.3 grade points per credit hour.
B  provides 3.0 grade points per credit hour.
B- provides 2.7 grade points per credit hour.
C+ provides 2.3 grade points per credit hour.
C  provides 2.0 grade points per credit hour.
C- provides 1.7 grade points per credit hour.
D+ provides 1.3 grade points per credit hour.
D  provides 1.0 grade points per credit hour.
F provides no credit or grade points.
(P) credit given—grade points not calculated.
X credit given—grade points not calculated.
M credit given—grade points not calculated.
I provides no credit or grade points.
W provides no credit or grade points.
S provides no credit or grade points.
X grades are disregarded.

102.  STUDENT’S SCHOLASTIC AVERAGE. A student’s scholastic average is determined by adding the grade points earned in all WSU course work and dividing by the total number of hours in which the student has been enrolled at WSU. I, W, S, P, and X grades are disregarded.

103.  GROUP AVERAGES. Group averages, honor rolls, eligibility lists for honorees, and similar lists are calculated on the basis of grades received in the Registrar’s Office by 5:00 p.m. two working days following the last day of final examinations.

104.  ACADEMIC COMPLAINT PROCEDURES. Students having complaints about instruction or grading should refer them first to the instructor. If the complaint is not resolved, then the student may refer the complaint in writing to the chairperson of the department in which the course is offered by the end of the last day of the following semester (excluding summer term). The chair’s decision shall be rendered within 20 business days. After the chair’s decision, the student or the instructor may appeal to the Dean’s Office. Complaints must be presented in writing to the dean within 20 business days of the chair’s decision. The written statement should describe the complaint, indicate how it affects the individual or unit, and include the remedy sought from the dean. The decision of the dean is the final step and shall be made within 20 business days. The University Ombudsman is available at any stage for advice or assistance in resolving academic complaints. At the branch campuses, the procedure is identical except that the academic area coordinator shall substitute for the department chair and the campus dean shall substitute for the college dean.

105.  ADMINISTRATIVE CHANGES TO FINAL GRADES

a.) University Academic Integrity Hearing Board. If an allegation of academic dishonesty is not resolved between the instructor and the student, then the case is referred to the University Academic Integrity Hearing Board. The case must be referred to the Board within one semester (excluding summer term). The University Academic Integrity Hearing Board shall have jurisdiction over decisions of any faculty member on matters of grading related to academic dishonesty cases. The decision of the board is final and not subject to further appeal.

b.) University Grade Appeals Board. If a chair, dean, Graduate School Dean, Academic Vice Chancellor or designee, or ombudsman finds that a change of a final grade is warranted for any reason other than academic dishonesty, they may refer the case to the University Grade Appeals Board for review within one semester of the posting of the grade (excluding summer term). Students may not take a grade appeal directly to the Board. In the case of graduate students, the Dean of the Graduate
School may refer a case to the Board upon completion of the Graduate School appeal process, as published in the Graduate School Bulletin. The University Grade Appeals Board shall have jurisdiction over decisions of any faculty member and/or administrator on matters of University course grading appeals. The decision of the board is final and not subject to further appeal.

**GRADUATION**

106. **APPLICATION FOR UNDERGRADUATE DEGREE (TO-DO LIST).** Application for a bachelor’s or DVM degree should be made at the Registrar’s Office near the end of the junior year. The Registrar will furnish candidates with records of their grade points and the hours completed to date, and lists of major and General Education Requirements yet to be completed. The chairperson of the department is held responsible for checking all departmental requirements, including prerequisites for all courses and the courses required in other departments. A graduation fee must be paid at the time of application.

108. **STUDENT RESPONSIBILITY FOR GRADUATION.** Together with the advisor, the student plans the program of study each semester. However, the written curriculum requirements described in the bulletin and catalog supplements are binding, and no advisor may waive or alter them. The student has the ultimate responsibility for meeting university, college and departmental graduation requirements.

109. **PETITIONS FOR UNDERGRADUATE GRADUATION REQUIREMENTS.** Students may petition for a change in graduation requirements or by obtaining the signatures of their department chairperson or director and dean on the appropriate form available in the undergraduate degree office of the Registrar’s Office.

110. **REQUIREMENTS FOR UNDERGRADUATE DEGREES**

(a) The four-year degree (BA, BS, BFA, B Lib A, B Mus):
1. Meet the General Education Requirements for Graduation.
2. Earn twice as many grade points as the number of hours enrolled in graded course work, in this or any institution for which a grade has been received.
3. Earn twice as many grade points in the major subject as the number of hours enrolled in graded course work in that major subject at Washington State University.
4. Complete any of the four-year programs.
5. Complete the senior year under the direction of the college in which the degree is to be granted. If any portion of the final year’s work is to be completed at another institution, advance approval must be obtained, in writing, from both the department chairperson and the dean of the college.
6. Earn a minimum of 120 semester hours of credit, no more than 8 of which may be PEACT (Physical Education Activity) courses. (At least 30 must be WSU hours; see Rule 6.)
7. Earn a minimum of 40 semester hours of credit in 300-400-level courses; 500-level courses will count toward the 300-400-level requirement, but an undergraduate may not be required to enroll in or complete a 500-level course as a requirement for the baccalaureate degree.
8. The award of a degree is conditioned upon the student’s satisfaction of all University graduation requirements.
9. The award of a degree is conditioned upon the student’s good standing in the university and satisfaction of all University graduation requirements. “Good standing” means the student has resolved any unpaid fees or acts of academic or behavioral misconduct, and complied with all sanctions imposed as a result of the misconduct. The University shall deny the award of a degree if the student is dismissed from the University based on his or her misconduct. (See Rule 45 and the Standards of Conduct for Students.)
10. All outstanding incomplete work (including grades of I, X, and no/blank grade) must be completed and posted to the official transcript prior to the conferral of the undergraduate or professional degree. Once an undergraduate or professional degree is conferred and posted to the official transcript, no changes will be allowed on the academic record that predates the undergraduate or professional degree.

111. **REQUIREMENTS FOR THE DOCTOR OF VETERINARY MEDICINE DEGREE (DVM)**

(a) Complete the four-year professional program.
(b) Meet requirements 9 and 10 listed under rule 114 (a) above.

112. **REQUIREMENTS FOR MASTER’S DEGREES**

(a) Spend not less than the equivalent of two semesters in residence (except for external programs approved by the Graduate Studies Committee).
(b) Earn not less than 30 semester hours of credit with a minimum of 21 semester hours of course work for a thesis degree program or 26 semester hours of course work for a nonthesis degree program.
(c) Earn a minimum grade point average of 3.00 on a graduate program in all upper-division and graduate course work completed for the master’s degree.
(d) Earn a minimum grade point average of 3.00 for all course work taken as a graduate student.
(e) Successfully complete graduate examinations.

115. **DATE OF GRADUATION.** Students will be recommended for their degrees at the end of the semester or term in which they complete their requirements. Diplomas will be dated the Saturday following the last day of final examination week for the fall semester, the day of commencement for the spring semester, and the Saturday following the last day of instruction for summer session.

**HONORS**

Honor rolls and lists are calculated on the basis of grades received by 5:00 p.m. two working days following the last day of final examinations. (See Rule 103.)
Appendix—Academic Regulations

133. PRESIDENT’S HONOR ROLL. An undergraduate will be named to the President’s Honor Roll under either of the following conditions:
(a) By achieving an overall grade point of 3.75 while enrolled in at least 9 graded hours in a single semester at Washington State University.
(b) By achieving a cumulative grade point average of 3.50 based on at least 15 cumulative hours of graded work at Washington State University.

137. RECOGNITION FOR SELECTED BACCALAUREATE DEGREE CANDIDATES. Candidates for baccalaureate degrees who have completed at least 30 hours of graded work (grades in which grade points are awarded) at Washington State University will graduate summa cum laude if the cumulative grade point average for work completed at Washington State University is 3.90 or better, will graduate magna cum laude if the minimum cumulative grade point average is 3.70 but less than 3.90, and will graduate cum laude if the minimum cumulative grade point average is 3.50 but less than 3.70.

The appropriate Latin phrase will be printed on the diploma and on the final transcript. Qualified students electing to participate in the Honors College who complete its requirements satisfactorily, regardless of whether they qualify to graduate summa cum laude, magna cum laude, or cum laude, will receive a certificate of completion and a printed notation on the final transcript.

Computation of graduation honors will be done prior to the end of the final semester to allow for publication of the appropriate honors in advance of graduation. However, following the student’s final semester, the Registrar will recomputed the student’s GPA including the last semester's work, and only this computation will determine official graduation honors.

Washington State University and its various colleges reserve the right to change the rules regulating admission to, instruction in, and graduation from Washington State University and any other regulations affecting the student body. Such regulations shall go into effect whenever the proper authorities may determine and shall apply to prospective students and to those who may at that time be enrolled.

SOLICITING

150. No agent, solicitor, or university individual or group shall be permitted to canvass or solicit faculty members during office hours in the interests of business, charity, or any other purpose not directly connected with university interest or official duties.

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Washington State University is located in Pullman, 80 miles south of Spokane and 285 miles east of Seattle.