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

The general information section provides you with information about admissions, student services, and choosing a major.

General Education Requirements and Courses

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.

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

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 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.

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

<table>
<thead>
<tr>
<th>(1) First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)*</td>
<td>3</td>
</tr>
<tr>
<td>(2) Degree Program Course*</td>
<td>3</td>
</tr>
<tr>
<td>Foreign Language, if necessary, or Elective*</td>
<td>4</td>
</tr>
<tr>
<td>(3) Math Proficiency [N] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Tier I Science [Q] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

(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.
Academic Calendar

First Semester (Fall)

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

Second Semester (Spring)

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Classes begin</td>
<td>Jan 9</td>
<td>Jan 7</td>
<td>Jan 13</td>
<td>Jan 12</td>
<td>Jan 11</td>
<td>Jan 9</td>
</tr>
<tr>
<td>Martin Luther King Jr. Day holiday</td>
<td>Jan 16</td>
<td>Jan 21</td>
<td>Jan 20</td>
<td>Jan 19</td>
<td>Jan 18</td>
<td>Jan 16</td>
</tr>
<tr>
<td>Presidents’ Day holiday</td>
<td>Feb 20</td>
<td>Feb 18</td>
<td>Feb 17</td>
<td>Feb 16</td>
<td>Feb 15</td>
<td>Feb 20</td>
</tr>
<tr>
<td>Midsemester grades due, 5:00 pm.</td>
<td>Feb 29</td>
<td>Feb 27</td>
<td>Mar 5</td>
<td>Mar 4</td>
<td>Mar 2</td>
<td>Mar 1</td>
</tr>
<tr>
<td>Final Exams, Monday–Friday</td>
<td>April 30-May 4</td>
<td>April 29-May 3</td>
<td>May 5-9</td>
<td>May 4-8</td>
<td>May 2-6</td>
<td>May 1-5</td>
</tr>
<tr>
<td>Commencement</td>
<td>May 5</td>
<td>May 4</td>
<td>May 10</td>
<td>May 9</td>
<td>May 7</td>
<td>May 6</td>
</tr>
<tr>
<td>Final grades due, 5:00 p.m.</td>
<td>May 8</td>
<td>May 7</td>
<td>May 13</td>
<td>May 12</td>
<td>May 10</td>
<td>May 9</td>
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Summer Session

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Early Session begins</td>
<td>May 7</td>
<td>May 6</td>
<td>May 12</td>
<td>May 11</td>
<td>May 9</td>
<td>May 8</td>
</tr>
<tr>
<td>Memorial Day holiday</td>
<td>May 28</td>
<td>May 27</td>
<td>May 26</td>
<td>May 25</td>
<td>May 30</td>
<td>May 29</td>
</tr>
<tr>
<td>Eight-Week Session begins</td>
<td>June 4</td>
<td>June 3</td>
<td>June 9</td>
<td>June 8</td>
<td>June 6</td>
<td>June 5</td>
</tr>
<tr>
<td>Late Six-Week Session begins</td>
<td>June 18</td>
<td>June 17</td>
<td>June 23</td>
<td>June 22</td>
<td>June 20</td>
<td>June 19</td>
</tr>
<tr>
<td>Independence Day holiday</td>
<td>July 4</td>
<td>July 4</td>
<td>July 4</td>
<td>July 3 (observed)</td>
<td>July 4</td>
<td>July 4</td>
</tr>
<tr>
<td>Summer Session ends, Friday</td>
<td>July 27</td>
<td>July 26</td>
<td>Aug 1</td>
<td>July 31</td>
<td>July 29</td>
<td>July 28</td>
</tr>
<tr>
<td>Final grades due, 5:00 p.m.</td>
<td>July 31</td>
<td>July 30</td>
<td>Aug 5</td>
<td>Aug 4</td>
<td>Aug 2</td>
<td>Aug 1</td>
</tr>
</tbody>
</table>

Please note: Faculty advising and registration for continuing students will be held prior to the end of the previous term.

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 Office of the Superintendent 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
AACSB International – The Association to Advance Collegiate Schools of Business
American Association for Accreditation of Laboratory Animal Care
American Association of Veterinary Laboratory Diagnosticians
American Chemical Society
American Council for Construction Education
American Council on Pharmaceutical Education
American College of Sports Medicine

American Dietetic Association
The Commission on Accreditation for Diетetics Education
American Psychological Association
American Society of Landscape Architects
American Speech-Language-Hearing Association
American Veterinary Medical Association Council on Education
Commission on Accreditation of Athletic Training Education
Commission on Collegiate Nursing Education
Commission on Accreditation of Healthcare Management Education
Computing Accreditation Commission of the Accreditation Board for Engineering and Technology
Council for Interior Design Accreditation
National Architectural Accrediting Board
National Association of Schools of Music
National Council for Accreditation of Teacher Education
Northwest Commission on Colleges and Universities Society of American Foresters
Washington State Professional Educator Standards Board
Washington State Commission for Quality Assurance in Nursing
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 11 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 200 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 the writing program, 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 5,900 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 College of Nursing is located there and Doctor of Phamacy 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, 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 of 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, biotechnology, wood technology, clean energy, 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 and Spokane campuses serve more than 21,300 undergraduate, professional, and graduate students, including those in the Distance Degree Programs. Statewide, WSU has more than 26,300 students.

WSU’s Pullman campus is residential in nature, with some 33 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 statewide are of diverse social, economic, and ethnic backgrounds from throughout the nation and about 98 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
Agricultural Economics, PhD
Agricultural and Food Systems, BS
Agriculture, MS
American Studies, MA, PhD
Animal Sciences, BS, MS, PhD
Anthropology, BA, MA, PhD
Apparel, Merchandising, and Textiles, BA, MA
Applied Economics, MS
Architectural Studies, BS
Architecture, MArch
Asian Studies, BA
Athletic Training, BS
Biochemistry, BS
Bioengineering, BS
Biological and Agricultural Engineering, MS, PhD
Biology, BS, MS
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
Computer Science, BA, BS, MS, PhD
Construction Management, BS
Criminal Justice, BA, MA, PhD
Crop Science, MS, PhD
Design, DDes
Digital Technology and Culture, BA
Economics, PhD
Econometrics, BS
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 Science, BS, MS
Fine Arts, BA, BFA, MFA
Food Science, BS, MS, PhD
Foreign Languages and Cultures, BA, MA
Genetics and Cell Biology, BS

Geology, BS, MS, PhD
Health Policy and Administration, MHPA
History, BA, MA, PhD
Horticulture, MS, PhD
Hospitality Business Management, BA
Human Development, BA, MA
Humanities, BA
Individual Interdisciplinary, PhD
Integrated Plant Sciences, BS
Interior Design, BA, MA
Kinesiology, BS
Landscape Architecture, BLA, MS
Materials Science and Engineering, BS, MS, PhD
Mathematics, BS, MS, PhD
Mechanical Engineering, BS, MS, PhD
Microbiology, BS
Molecular Biosciences, MS, PhD
Molecular Plant Sciences, MS, PhD
Music, BA, BMus, MA
Natural Resource Sciences, BS, MS
Neuroscience, BS, MS, PhD
Nursing, BS, MNurs, DNP, PhD
Nutrition and Exercise Physiology, BS, MS, PhD
Pharmaceutical Sciences, MS, PhD
Pharmacy, PharmD
Philosophy, BA, MA
Physics, BS, MS, PhD
Plant Pathology, MS, PhD
Political Science, BA, MA, PhD
Psychology, BS, MS, PhD
Public Affairs, BA, MPA
Science, Bachelor of Social Sciences, BA
Social Studies, BA
Sociology, BA, MA, PhD
Soil Science, MS, PhD
Speech and Hearing Sciences, BA, MA
Sport Management, BA
Statistics, MS
Veterinary Medicine, DVM
Veterinary Science, BS, MS, PhD
Women's Studies, BA
Zoology, BS, MS, PhD
Washington State University Strategic Plan

Vision
Washington State University will be recognized as one of the nation’s leading land-grant research universities.

Mission
Washington State University is a public research university committed to its land-grant heritage and tradition of service to society. Our mission is three-fold:

• To **advance** knowledge through creative research and scholarship across a wide range of academic disciplines.
• To **extend** knowledge through innovative educational programs in which emerging scholars are mentored to realize their highest potential and assume roles of leadership, responsibility, and service to society.
• To **apply** knowledge through local and global engagement that will improve quality of life and enhance the economy of the state, nation, and world.

Values

• **Quality and Excellence:** We are committed to maintaining quality and excellence in all our endeavors.
• **Integrity, Trust, and Respect:** We are committed to being an institution that demonstrates trust and respect for all persons and cultivates individual and institutional integrity in all that we do.
• **Discovery, Innovation, and Creativity:** We are committed to the pursuit of inquiry and discovery and to the creation and dissemination of knowledge.
• **Land-grant Ideals:** We are committed to the land-grant ideals of access, engagement, leadership, and service to bring the practical benefits of education to the state, nation, and global community.
• **Diversity and Global Citizenship:** We embrace a worldview that values diversity and cultural differences and recognizes the importance of global interdependence and sustainability.
• **Freedom of Expression:** We are committed to being a community that protects the free exchange of ideas while encouraging dialog that is constructive and civil.
• **Stewardship and Accountability:** We are committed to being ethical and responsible stewards of University resources and to being accountable for upholding the full scope of these values.

Goals

Goal 1
Achieve national and international preeminence in innovation, discovery, and creativity.

Goal 2
Provide a premier education and transformative experience that prepares students to excel in a global society.

Goal 3
Lead in relevant local, national, and global outreach and engagement.

Goal 4
Embrace an environment of diversity, integrity, and transparency.

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 $1.24 billion 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.
Student Services and Facilities

Student Involvement and Leadership Development
CUB 320
509-335-9667
www.studentinvolvement.wsu.edu

Center for Advising and Career Development (CACD)
Lighty Building, Room 180
509-335-6000, or 888-978-7252
www.cacd.wsu.edu

Center for Civic Engagement
Compton Union Building, Room L 48
509-335-7708
www.cce.wsu.edu

WSU Children’s Center
509-335-8847
www.childrenscenter.wsu.edu/

Compton Union Building
www.cub.wsu.edu

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

The Disability Resource Center
Washington Building, Room 217
509-335-3417
www.drc.wsu.edu

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

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

Gender Identity/Expression and Sexual Orientation Resource Center
Compton Union Building, Room 401
509-335-6388
www.thecenter.wsu.edu

Health and Wellness Services
Washington Building
1125 NE Washington Ave.
Clinic 509-335-3575; Pharmacy 509-335-5742
student.insurance@wsu.edu
www.hws.wsu.edu

Housing Services
Streit-Perham Administrative Office
509-335-7732
www.livingat.wsu.edu

Information Technology Services (ITS)
ITS Services & Accounts Desk
Information Technology Building 2088
509 335-4357; 1-800-608-3839
helpdesk@wsu.edu
www.infotech.wsu.edu

International Programs
Bryan Hall, Room 206
509-335-2541
www.ip.wsu.edu

Intensive American Language Center (IALC)
McAllister Hall, Room 116
509-335-6675
www.ip.wsu.edu/ialc

The Libraries
www.wsulibs.wsu.edu

The Office of Equal Opportunity
French Administration Building, Room 225
509-335-8288
www.oeo.wsu.edu

The Office of Multicultural Student Services
Compton Union Building, Room 409
509-335-7852
www.mss.wsu.edu

The Ombudsman Office
Wilson Hall, Room 2
509-335-1195
www.wsu.edu/~ombuds

Registrar's Office
French Administration Building, Room 346
509-335-5346
registrar@wsu.edu
www.registrar.wsu.edu

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

Scholastic Societies
www.wsu.edu/NIS/StudentLife.html

Student Accounts (Tuition and Fees)
French Administration Building, Room 342
509-335-9651
www.wsu.edu/studacct/

Student Government
www.aswsu.wsu.edu Undergraduate Students,
www.gpsa.wsu.edu Graduate and Professional Students
Student Recreation Center
Student Recreation Center, Room 250
509-335-8732 (UREC)
www.urec.wsu.edu

Student Support Services TRiO Program
Lighty Building, Room 260
509-335-7324
www.sssp.wsu.edu

Summer Session
www.summer.wsu.edu

Transfer Center
Lighty Building, Room 260
509-335-6000, or 888-978-7252
www.transfers.cacd.wsu.edu

University Writing Center
Center for Undergraduate Education, Room 403
509-335-7959
www.writingprogram.wsu.edu

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

Lighty Building, Room 370
888-468-6978 or 509-335-5586
admission.wsu.edu

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 based on space availability, 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 practice of Washington State University to admit all applicants if the total evidence 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 and resources can be made available.

Applications are available at 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.

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 2010 was 3.44. Of the 2,980 freshmen who entered in the fall 2010, 2,811 were enrolled in the spring of 2011.

Freshman Admission Requirements
admission.wsu.edu

Freshman applicants will be considered for admission on the basis of their academic records and other supporting documents, which include transcripts that show coursework through at least grade 11, completion of the following College Academic Distribution Requirements (CADRs), test scores (SAT or ACT), a personal statement, and other relevant materials as requested.

English: Four credits (three of which must be composition and literature).
Mathematics: Three credits of college preparatory mathematics (one year of geometry and two years of algebra, including an introductory component of trigonometry). Additional mathematics is strongly recommended. Please note: Beginning with admission applications for fall 2012, one full credit in a math-based quantitative course during the senior year must be earned. This can be met in a variety of ways.
Science: Two credits of laboratory science, including one credit of algebra-based science (typically chemistry or physics).
Social Science: Three credits.
World Languages: Two credits of the same world language, Native American language, or American Sign Language.
Fine Arts: One credit of fine, visual, or performing arts, or one additional credit of academic elective.

(1 credit = 1 year)

It is strongly recommended for students planning to major in science or science-related fields to complete at least three years of 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. WSU reserves the right to withdraw an offer of admission if there is a significant drop in the applicant's academic performance following the offer of admission or if a student does not complete the CADRs as outlined above.

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 November 15 for priority consideration.

A complete application includes the freshman application form, the official high school transcript provided directly from the high school, the SAT or ACT score report from the testing agency, the personal statement, and the nonrefundable application fee. Students are encouraged to apply online at 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 interested in the Honors College should email honors@wsu.edu or call 509-335-4505.

Advanced Placement (AP), College Level Examination Program (CLEP), International Baccalaureate (IB)

wsu.edu/advancedcredit

In consultation with academic departments, credit may be granted to entering or enrolled undergraduate students via external examinations. Credit by examination shall yield no grade points. Such credits may partially fulfill General Education Requirements for graduation. External examinations include but are 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 wsu.edu/advancedcredit.

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

Transfer Admission Requirements
admission.wsu.edu

Transfer applicants who have successfully completed a Direct Transfer Agreement (DTA) associate degree from a regionally accredited post-secondary institution in Washington at the time of application will be admitted as space allows.

Transfer applicants without a DTA but with at least one full year of college-level transferable academic work from a regionally accredited post-secondary institution will be considered for admission on the basis of their academic records and other supporting documents, which include post-secondary institution transcripts, grade trends, strength of curriculum and personal statement. Applicants with less than one full year of college-level academic work will be considered for admission if they also meet the freshman admission requirements. The personal statement is also helpful although not required.

The priority date for fall semester is January 31, and the priority date for spring semester is November 15. Interested applicants should complete their admission applications by these dates for priority consideration.

A complete application includes the transfer 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.
Admission

Applicants with less than a full year of college-level transferable academic work at the time of application may also be asked to provide freshman credentials including high school transcripts and test scores for consideration.

Transfer Credit Policy

Washington State University awards transfer credit for college-level academic work completed at institutions that are regionally accredited. Military credit is awarded lower-division elective credit.

The maximum allowable credit toward a four-year degree 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 shall be 120 semester (180 quarter) hours of credit, of which no more than 73 semester credits may be lower division hours of credit.

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.

Associate Degree Transfer

Students who have completed a Direct Transfer Agreement (DTA) associate 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 GERs for graduation and will generally be given junior standing. The Associate of Arts-Oregon transfer degree from an Oregon community college is generally considered to have met the lower-division GERs, 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 standing (60 semester credits). For details on specific degrees visit transfer.wsu.edu. In all cases, students will also be required to meet the upper-division GERs as well as any departmental and college graduation requirements.

Students who have completed the Associate of Science Transfer degree (AS-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 agreement associate degree and will generally be given junior standing. Additional GERs 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 regionally accredited 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 Agreement (DTA) associate degree 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 with any questions regarding the transfer of credit or to access transfer articulation information at transfercredit.wsu.edu.

Adult Student Admission

admission.wsu.edu

Washington State University recognizes that students who have been away from the classroom for extended periods of time may have special needs. Therefore, in accordance with the policies set forth by the Higher Education Coordinating Board, applications from students who are 25 years of age or over may be considered for admission on the basis of alternative criteria. Students are encouraged to contact the Office of Admissions for details.

Admission of Students with Extraordinary Talents

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, 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 Vice President for Student Affairs and Enrollment 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.

A three-person panel consisting of the Chair of the Faculty Senate, Chair of the Academic Affairs Committee of the Faculty Senate, and the Vice President for Student Affairs and Enrollment, or designees will further review students identified as having extraordinary talent but whose AIN scores are below a 28. A written recommendation of the relevant chair/director or head coach will be required to support the student's admission. In the case of student athletes, the students who are assessed to have potential to contribute to the University through their special skills and advance themselves through the university experience will be considered for admission. Students who fail to meet the university’s minimum core requirements or in the case of student athletes who fail to meet NCAA requirements will not be admitted to the university under this policy.

The University will carefully monitor the number and progress of students admitted under rules 1-c and 1-e. Every fall, the Vice President for Student Affairs and Enrollment will provide a written report to the Provost, Chair of the Faculty Senate, and the President on the number of students admitted, their academic qualifications, extraordinary talents, or the basis for their admission. The report will also assess the academic progress of students previously admitted under these rules to insure that the program is functioning to the advantage of the students and the university community as a whole.

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. 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

admission.wsu.edu

If you were previously enrolled at any Washington State University campus and were absent for more than one semester (excluding summer), you are considered a former student and you need to reapply for admission.

Preference will be given to applications received by January 31 for fall semester and November 15 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 (see students.cacd.wsu.edu) 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 will be considered for admission on the basis of their academic records and other supporting documents which include post-secondary transcripts, grade trends, strength of curriculum and academic preparation.

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

International Student Admission Requirements
admission.wsu.edu

A complete admission application includes the international application, non-refundable application fee, proof of English language proficiency, secondary or post-secondary credential evaluation from a member organization of the National Association of Credential Evaluation Services (see naces.org), completion of the Certificate of Financial Responsibility and proof of financial support for the first year of study.

Non-Degree Admission
admission.wsu.edu

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 availability, 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 apply.wsu.edu.

International Student Non-Degree Admission Requirements
admission.wsu.edu

A complete admission application includes the international application, non-refundable application fee, and proof of English language proficiency. Non-degree applicants needing immigration (visa) assistance are also required to enroll in a full time course of study and must provide the Certificate of Financial Responsibility and proof of financial support for the first year of study and a one-page statement of intent, describing what, why, and how long they would like to study at Washington State University. International students who are interested in applying as a non-degree-seeking student may apply using the international application at apply.wsu.edu.

Running Start at the Pullman campus

For fall and spring semesters, eligible Whitman County high school students may enroll through Running Start. For more information on the Running Start program, please contact the Registrar's Office at 509-335-1693.

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 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. Details for certification and acceptance into programs vary and students applying for admission to selective programs should contact the program or check its website or catalog section for more information.

Advance Payment on Tuition and Fees
wsu.edu/advancepay

All new admitted undergraduate students, except former students returning and non-degree students are required to submit a nonrefundable advance payment on tuition and fees in the amount of $200 to confirm their space at the University. Students must submit this fee by the due date in their admission letter otherwise their space may be given to another student.

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.
Colleges and the Graduate School

COLLEGE OF AGRICULTURAL, HUMAN, AND NATURAL RESOURCE SCIENCES

Daniel J. Bernardo, Dean
Hulbert Hall, Room 423
509-335-4562
www.cahnrs.wsu.edu

The College of Agricultural, Human, and Natural Resource Sciences generates and disseminates knowledge about physical, biological, social, and economic aspects of agriculture, natural resources, human, 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 20 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 textiles, and interior and landscape 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 and plant disease management, and sales and distribution of food products. Graduates are qualified to be agricultural producers, land managers, agriculture teachers, 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 teachers of family and consumer sciences, human science and community agency managers, and directors of aging programs. Other careers include apparel design and 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

Agricultural and Food Systems  Cahnrs Academic Programs
(Agricultural and Food Business Economics, Agricultural Education, Agricultural Technology and Production Management, Agriculture and Food Security, and Organic Agriculture Systems)
Animal Sciences  Animal Sciences
(Including Industry, Production Management, and Science/Pre-Veterinary Medicine)
Economic Sciences  Economic Sciences
Food Science  Food Science
Integrated Plant Sciences  Crop and Soil Sciences
(Agricultural Biotechnology, Field Crop Management, Fruit and Vegetable Management, Nursery and Greenhouse Management, Landscape Design and Implementation, Turfgrass Management, and Viticulture and Enology)
Natural Resource Sciences  Natural Resource Sciences
(INCLUDING Natural Resource Sciences and Wildlife Ecology)
Degree
Bachelor of Landscape Architecture
Landscape Architecture
Horticulture and Landscape Architecture
Bachelor of Arts
Apparel, Merchandising, and Textiles
Apparel, Merchandising, Design, and Textiles
Human Development
Human Development
Interior Design
Interior Design
Master of Regional Planning
Regional Planning
Earth and Environmental Science
Master of Science
Agriculture
Crop and Soil Sciences
Animal Sciences
Animal Sciences
Applied Economics
Economic Sciences
Biological and Agricultural Engineering
Biological Systems Engineering
Crop Science
Crop and Soil Sciences
Entomology
Entomology
Food Science
Food Science
Horticulture
Horticulture and Landscape Architecture
Landscape Architecture
Landscape Architecture
Molecular Plant Sciences
Molecular Plant Sciences
Natural Resource Sciences
Natural Resource Sciences
Plant Pathology
Plant Pathology
Soil Science
Crop and Soil Sciences
Master of Arts
Apparel, Merchandising, and Textiles
Apparel, Merchandising, Design, and Textiles
Human Development
Human Development
Interior Design
Interior Design
Doctor of Philosophy
Agricultural Economics
Economic Sciences
Animal Sciences
Animal Sciences
Biological and Agricultural Engineering
Biological Systems Engineering
Crop Science
Crop and Soil Sciences
Economics
School of Economic Sciences
Entomology
Entomology
Food Science
Food Science
Horticulture
Horticulture and Landscape Architecture
Architecture
Molecular Plant Sciences
Molecular Plant Sciences
Plant Pathology
Plant Pathology
Soil Science
Crop and Soil Sciences

COLLEGE OF BUSINESS

Eric R. Spangenberg, Dean and Maughmer Freedom Philosophy Chair
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 four campuses of Washington State University with the largest campus in Pullman and regional campuses located in Spokane, Vancouver, and the Tri-Cities. The CB conducts scholarly and applied research offering degree programs in a variety of business disciplines including hospitality business management as well as wine business management, and supplements these offerings through innovative online learning and exchange programs throughout the world.

The CB is among five 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 11th among business programs at public universities in the Western United States by US News and World Report 2007. In addition, the account programs maintain an additional specialized AACSB accreditation.

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. Students develop global competencies in study-abroad programs and international internships facilitated by the CD International Business program. The College of Business sends more students abroad than any other college at WSU.

With over 50 years of excellence in graduate education, the MBA curriculum focuses on the management of innovation to develop leaders who can successfully take new products to market. The WSU MBA program was named one of Princeton Review's "Best Business Schools." Graduate program offerings include an Executive MBA program, Online MBA, Full-time MBA, Professional MBA, Master of Accounting, and a Ph.D. in Business Administration. The doctor of philosophy in business prepares its graduates for careers in teaching and research positions and places students at prestigious research institutions.

Additionally, 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; entrepreneurship and information systems; finance and management science; international business; management; and marketing—offer the following majors for the Bachelor of Arts in Business Administration degree:

Accounting
Entrepreneurship
Finance (six career tracks include Risk Management/Insurance and Real Estate)
International Business
Management Information Systems (Operation or Organization tracks)
Marketing

Within the college a specialized Bachelor of Arts degree is offered in the area of Hospitality Business Management, with majors in:

Hospitality Business Management
Wine Business Management

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

Minors
The College of Business offers two minors, one in business administration and a second in hospitality business management. For specific information regarding minor requirements, see the Business Administration and Hospitality Business Management sections of this catalog.

Admission
Admission on the Pullman Campus 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 (see the certification requirements in the Business Administration section of this catalog). To be eligible to enroll in 300-400-level business or HBM courses, business and hospitality business management students must have certified in their respective majors upon completion of 60 hours of course work and meeting GPA and other certification requirements.

For specific information regarding the acceptability of college courses taken at other institutions in areas of study offered by the departments of the College of Business, prospective students should communicate with the appropriate department chair or the CB Advising Center.
Diversity, Recruitment, and Retention
The College of Business is strongly committed to diversifying its student body as well as to improving its retention and graduation rates of underrepresented students. The College strives to create an environment that is supportive and inclusive and where all students can succeed academically and professionally.

Business Degrees
The curricula of the College of Business lead to the following degrees:

**Pullman Campus Degrees**
- Bachelor of Arts, Business Administration
- Bachelor of Arts, Hospitality Business Management
- Bachelor of Science, Business Administration
- Bachelor of Science, Accounting
- Bachelor of Science, Philosophy, Business Administration

**Spokane Campus Degrees**
- Bachelor of Arts, Business Administration
- Master of Business Administration

**Tri-Cities Campus Degrees**
- Bachelor of Arts, Business Administration
- Master of Business Administration

**Vancouver Campus Degrees**
- Bachelor of Arts, Business Administration
- Master of Accounting

**THE EDWARD R MURROW COLLEGE OF COMMUNICATION**

Lawrence Pintak, Founding Dean
Communication Addition, Room 101
509-335-7333
www.communication.wsu.edu

Communication is central both to a democratic society and to membership in the global community. The faculty of the Edward R. Murrow College of Communication is dedicated to creating knowledge and facilitating learning about the production and interpretation of messages. Combining programs that integrate fundamental communication domains, we are uniquely positioned to disseminate knowledge in a world where interpersonal and mediated communication converge.

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 researchers, and leading professionals.

Research is necessary to fully serve our constituencies 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 students exposure to state-of-the-art computer-based technologies. The Edward R. Murrow College of Communication has four computer labs, including: a writing lab, advanced video and graphics labs, data analysis lab, and a broadcast news lab; two television production studios, several video editing suites, radio/audio labs, and student-run radio and cable television stations.

The Edward R. Murrow College of Communication offers sequences in communication fields: journalism and media production (broadcasting and journalism), organizational communication, and strategic communication (advertising and public relations). The Murrow College offers the only comprehensive broadcast program in the state of Washington. The College is noted for cutting edge 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 are placed in rank order based on their averaged GPAs. The top students are certified based on the number of available spots that semester, approximately 140 spots in Fall; 115 spots in Spring; and 40 spots in the Summer. The limitation is imposed due to limited space, equipment and faculty resources. Students transferring into the College with 55 or more credit hours should complete the certification requirements within two semesters. However, all students should apply to certify before earning 90 credit hours.

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 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.

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 News
- Broadcast Production
- Journalism
- Organizational Communication
- Public Relations
- Communication, Organizations, and Culture
- Media, Health, and Social Issues

**Master of Arts, Communication**

**Doctor of Philosophy**

10
COLLEGE OF EDUCATION

A. G. Rud, 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 school counseling are available at the graduate level. Doctoral programs focus on preparation of administrative personnel for the schools, counselors, and community colleges, as well as teacher educators and educational researchers. Graduate programs stress scholarship as a basis for all professional endeavors.

The College of Education is a member of the American Association of Colleges for Teacher Education and the University Council on Educational Administration. The doctoral program in counseling psychology is accredited by the American Psychological Association. The athletic training program is accredited by the Commission on Accreditation of Athletic Training Education.

The college 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, to local school systems.

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.

Degrees

Degrees offered in the College of Education are as follows:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Department</th>
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<tbody>
<tr>
<td>Bachelor of Arts Education</td>
<td>Teaching and Learning, Educational Leadership and Counseling Psychology</td>
</tr>
<tr>
<td>Bachelor of Arts, Sport Management</td>
<td>Educational Leadership and Counseling Psychology</td>
</tr>
<tr>
<td>Bachelor of Science, Kinesiology (Movement Studies or Health and Fitness)</td>
<td>Educational Leadership and Counseling Psychology</td>
</tr>
<tr>
<td>Bachelor of Science, Athletic Training</td>
<td>Educational Leadership and Counseling Psychology, Curriculum and Instruction</td>
</tr>
<tr>
<td>Master of Education</td>
<td>Educational Leadership (K-12), Educational Psychology, English Language Learners (ELL), Higher Education Administration, Literacy Education, Special Education, Sport Management</td>
</tr>
<tr>
<td>Master of Arts</td>
<td>Counseling, Curriculum and Instruction, Educational Leadership (K-12), Educational Psychology, English Language Learners (ELL), Higher Education Administration, Literacy Education, Special Education, Sport Management</td>
</tr>
<tr>
<td>Master in Teaching</td>
<td>Elementary Education, Secondary Education, Educational Leadership (K-12), Higher Education Administration, Teacher Leadership</td>
</tr>
<tr>
<td>Doctor of Education</td>
<td>Educational Leadership (K-12), Counseling Psychology, Cultural Studies and Social Thought in Education, Educational Psychology, Language and Literacy Education, Special Education</td>
</tr>
<tr>
<td>Doctor of Philosophy</td>
<td>Cultural Studies and Social Thought in Education, Educational Psychology, Language and Literacy Education, Special Education</td>
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COLLEGE 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 research 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>Architectural Studies</td>
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<tr>
<td></td>
<td>Bioengineering</td>
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<tr>
<td></td>
<td>Chemical Engineering</td>
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<tr>
<td></td>
<td>Civil Engineering</td>
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<tr>
<td></td>
<td>Computer Engineering</td>
</tr>
<tr>
<td></td>
<td>Computer Science (also Tri-Cities and Vancouver)</td>
</tr>
<tr>
<td></td>
<td>Construction Management</td>
</tr>
<tr>
<td>Master of Architecture</td>
<td>Engineering and Technology Management (Spokane, Tri-Cities, and Vancouver only)</td>
</tr>
<tr>
<td>Master of Engineering and Technology Management</td>
<td>Architecture</td>
</tr>
<tr>
<td>Master of Science</td>
<td>Biological and Agricultural Engineering</td>
</tr>
<tr>
<td></td>
<td>Chemical Engineering</td>
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<tr>
<td></td>
<td>Civil Engineering</td>
</tr>
<tr>
<td></td>
<td>Computer Science (also Tri-Cities and Vancouver)</td>
</tr>
<tr>
<td></td>
<td>Electrical Engineering (also Tri-Cities)</td>
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<td></td>
<td>Engineering Environment (also Tri-Cities)</td>
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<tr>
<td></td>
<td>Environmental Engineering (also Tri-Cities)</td>
</tr>
<tr>
<td></td>
<td>Materials Science and Engineering (also Tri-Cities and Vancouver)</td>
</tr>
<tr>
<td>Doctor of Philosophy</td>
<td>Biological and Agricultural Engineering</td>
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<td></td>
<td>Chemical Engineering</td>
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<td>Civil Engineering</td>
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<td>Computer Science (also Tri-Cities)</td>
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<td></td>
<td>Electrical and Computer Engineering (also Tri-Cities)</td>
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<tr>
<td></td>
<td>Engineering Science</td>
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<tr>
<td></td>
<td>Materials Science (Interdisciplinary Program)</td>
</tr>
<tr>
<td></td>
<td>Mechanical Engineering (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 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 puruse 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 algorithms 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 areas 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.
Degrees and Certificates Granted

Doctor of Philosophy

Programs leading to this degree are available in the following fields of study: agricultural economics, American studies, animal sciences, anthropology, 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, geology, history, horticulture, individual interdisciplinary studies, materials science and engineering, mathematics, mechanical engineering, molecular biosciences, molecular plant sciences, neuroscience, nursing, nutrition and exercise physiology, pharmaceutical sciences, 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, or Master in Teaching.

Graduate Certificates

Formal graduate certificates convey that students have developed mastery of course material. Requirements for the Graduate Certificate vary with Department or Program. They typically consist of 9 to 12 credits of graded coursework. Certificate programs offered at WSU include Graduate Certificate in Bioethics, Graduate Certificate in Biotechnology Management, Graduate Certificate in Constraints Management, Graduate Certificate in Construction Project Management, Graduate Certificate in Contextualized Foreign Language Instruction, Graduate Certificate in Early Childhood Leadership and Administration, Graduate Certificate in Engineering Nanotechnology, Graduate Certificate in Exercise Science, Graduate Certificate in General Engineering and Technology Management, Graduate Certificate in Global Justice and Security Studies, Graduate Certificate in Health - Assistive Smart Environment Design, Graduate Certificate in Interdisciplinary Environmental Biogeochemistry, Graduate Certificate in Manufacturing Leadership, Graduate Certificate in Molecular Biosciences, Graduate Certificate in Nuclear Engineering, Graduate Certificate in Nurse Educator, Graduate Certificate in Nursing Leadership, Graduate Certificate in Post Master’s Family Nurse Practitioner, Graduate Certificate in Project Management, Graduate Certificate in Protein Biotechnology, Graduate Certificate in Reproductive Biology, Graduate Certificate in Six Sigma Quality Management, Graduate Certificate in Supply Chain Management, Graduate Certificate in Sustainable Agriculture, Graduate Certificate in Systems Engineering Management.

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 attended for any undergraduate course work; (2) colleges or universities from which any degrees have been granted or are expected; (3) 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) cumulative grade point average for 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. Applicants who attended school outside the United States or Canada must submit a course-by-course evaluation report of their foreign credentials from the WSU-approved credential evaluation service (see the WSU Apply website for complete information). 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. The complete policies and procedures regarding admissions can be found at www.gradschool.wsu.edu.

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. The number of such hours is limited to no more than half of the total graded course credits required by the program that is listed on the Program of Study. Individual departments/programs may choose to limit transfer credits to an amount less than what is specified above. Use of WSU credit earned during fall and spring semesters of Washington State University may be applied toward an advanced degree. Credit earned during summer sessions of Washington State University may be used toward an advanced degree. The number of such hours is limited to no more than half of the total graded course credits required by the program that is listed on the Program of Study. 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.

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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. The complete policies and procedures regarding admissions can be found at www.gradschool.wsu.edu.

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 WSU Online

Credit earned in graduate-level courses taken through WSU Online will be accepted on graduate student programs without limit, subject only to customary admission and program approvals.

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 degree-seeking graduate students must maintain continuous enrollment in the Graduate School, registering for each semester excluding summer session from the time of first enrollment until all requirements for the degree are completed. Continuous enrollment may be maintained through: 1) full-time enrollment, 2) part-time enrollment, 3) continuous doctoral status, or 4) approved leave of absence.

Degree-seeking students who fail to maintain continuous enrollment or official leave status for up to two consecutive semesters (excluding summer) must complete a re-enrollment form to re-enroll and will be assessed a fee. Re-enrollment requires departmental approval and is not guaranteed. Degree-seeking students who fail to reenroll after two consecutive semesters (excluding summer) will be dropped from the University. Students who want to be readmitted to the program will be required to reapply and pay an application fee. Readmission is not guaranteed. Non-degree-seeking students who are not enrolled for up to four consecutive semesters (excluding summer) must complete a re-enrollment form and pay a re-enrollment fee. Re-enrollment requires departmental approval and is not guaranteed. After four consecutive semesters (excluding summer) of non-enrollment, students will be dropped from the university. Students who want to be readmitted to the program will be required to reapply and pay an application fee. Readmission is not guaranteed.

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 a minimum of two 700, 702, or 800 credits 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.

An I grade for incomplete work for a course will be changed to an F grade if the work is not completed within one academic year following the semester in which the I grade was assigned, unless a shorter time is specified by the instructor. 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 degree.

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 graduate certificate and 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. Most appointments are made by April 15 for the following academic year. 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, Dean  
Honors Hall, Room 130  
509-335-4505  
www.honors.wsu.edu

The University Honors College at Washington State University is one of the oldest and most well respected honors colleges in the nation. The mission of the Honors College is to offer students 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. However, students who transfer to General Education before graduation will be held to all requirements of General Education.

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 and requires demonstration of proficiency in a second spoken language before graduation.

**Admission to the University Honors College**

High school students who have shown outstanding scholastic ability, intellectual achievement, motivation, and extracurricular and community involvement may be invited to join the Honors College. 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 interested in Honors but have not been invited within three weeks of their acceptance to WSU should contact Honors. 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, transfer, and international students should contact Honors if they are interested in the program. We recommend talking with an Honors advisor 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**

Douglas Epperson, Dean  
Thompson Hall, Room 309  
509-335-4581  
www.libarts.wsu.edu

The College of Liberal Arts fosters an open and diverse environment where faculty and students engage in wide-ranging research, artistic creativity, humanistic inquiry, global learning, and community involvement. Undergraduate academic programs in the arts, humanities, and social sciences provide students in all disciplines with both a broad and deep understanding of culture, society, and human behavior. They are inspired to become critical thinkers and life-long learners, prepared for a rich and rewarding life in any career field or for further graduate and professional education. Many programs within the college offer graduate degrees that further prepare students for successful professional and academic careers.
Degrees offered by the College of Liberal Arts are listed below. 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 in the catalog.

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, and speech.


Requirements for Graduation

The degrees offered by the College of Liberal Arts are listed below. 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 in the catalog.

Degrees

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

Bachelor of Arts

- Anthropology
- Asian Studies
- Comparative Ethnic Studies
- Criminal Justice
- Digital Technology and Culture
- English
- Fine Arts
- Foreign Languages and Cultures
  (Chinese, French, Spanish)
- History
- Humanities (General Studies)
- Music
- Philosophy
- Political Science
- Public Affairs (Vancouver)
- Social Sciences (General Studies)
- Social Studies
- Sociology
- Speech and Hearing Sciences
- Women's Studies

Bachelor of Fine Arts

- Fine Arts
- Music
- Philosophy

Bachelor of Music

- Music
- Psychology

Bachelor of Science

- American Studies
- Anthropology
- Criminal Justice
- English
- Foreign Languages and Cultures
  (Spanish)
- History
- Music

Master of Arts

- Anthropology
- History
- Philosophy

Master of Public Affairs

- Public Affairs (Vancouver)

Master of Science

- Psychology (Clinical and Experimental)

Doctor of Philosophy

- American Studies
- Anthropology
- English
- History
- Political Science
- Psychology (Clinical and Experimental)
- Sociology

COLLEGE OF NURSING

Patricia Butterfield, Dean
P.O. Box 1495
Spokane, WA 99210-1495
509-324-7360
www.nursing.wsu.edu

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

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 800 generic and registered nurse students are enrolled in the baccalaureate nursing program at Spokane, Yakima, Tri-Cities, 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 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 College of Nursing building in Spokane, Yakima, and the WSU 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 nursing major 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...
environments, including community, institutional, and long-term care settings. Geographic locations. Students will gain experience in a variety of health care settings, including community care, institutional care, and long-term care facilities across various geographic locations. Students will have opportunities to work in Spokane, Yakima, Vancouver, Tri-Cities, Tacoma, or Pullman. Students will participate in hybrid delivery, combining in-class sessions with online components, and engage in independent research projects.

**Graduate Program**

The Master of Nursing (MN) program prepares nurses for advanced practice nursing as a Family Nurse Practitioner (FNP) or a Psychiatric Mental Health Nurse Practitioner (PMHNP). In addition, advanced population health (APH) track leads to a specialty in nursing education, organizational leadership, or care management populations. Additional coursework can lead to certification eligibility for Community Clinical Nurse Specialist. The PhD program in nursing has a core of science courses, analytical courses, and education courses, guiding the student to conduct qualitative or quantitative inquiry. The PhD program prepares students as nurse scientists, able to carry out independent research, and to serve as leaders in nursing education. Full or part-time study is available and all graduate tracks and courses are offered in hybrid delivery (some in class and others via videoconference and web). Graduate School deadlines for application are followed.

**Professional Development**

The Office of Professional Development at WSU College of Nursing focuses on specific learning needs of registered nurses in the community, state, and throughout the country. Cost-effective programs are available to promote professional certification, licensure, and re-licensure. The Office of Professional Development is an approved provider of continuing education available through the Washington State Nurses Association (an accredited approver by the American Nurses Credentialing Center on Accreditation), by the California Board of Registered Nursing, and the Office of the Superintendent of Public Instruction in Washington. For more detailed information on the programs offered, visit [www.nursing.wsu.edu](http://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>Advanced population health, Family nurse practitioner, Psychiatric/mental health nurse practitioner</td>
</tr>
<tr>
<td>Doctor of Nursing Practice</td>
<td>Nursing</td>
</tr>
<tr>
<td>Doctor of Philosophy</td>
<td>Nursing</td>
</tr>
</tbody>
</table>

**COLLEGE OF PHARMACY**

Gary Pollack, Dean  
Wegner Hall, Room 105  
509-335-5901  
[www.pharmacy.wsu.edu](http://www.pharmacy.wsu.edu)

**Doctor of Pharmacy**

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 first two of which are offered in Pullman. The third professional year of the PharmD curriculum is delivered in the Health Science building located on the Washington State University Spokane campus. The fourth professional year of the PharmD curriculum consists of an advanced experiential training in which students will be assigned to one of the following geographic locations: Spokane, Yakima, Vancouver, Tri-Cities, Tacoma, or Pullman. Students 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 January 1. Although a bachelor's degree is not required for admission, prerequisites for admission require at least three years of pre-pharmacy education. Because the number of applicants to WSU College of Pharmacy may exceed 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](http://www.pharmacy.wsu.edu), or contact the College of Pharmacy Office of Student Services at 509-335-2356.

**Program in Nutrition and Exercise Physiology**

The Program in Nutrition and Exercise Physiology (NEP) offers an undergraduate BS degree that integrates coursework in nutrition and exercise physiology with the goal of preparing students for professional accreditation in the areas of dietetics and/or clinical exercise physiology. To this end, NEP offers an MS Coordinated Program in Dietetics, Nutrition, and Exercise Physiology that provides students with the coursework and practice hours required for the examine for Registered Dietitian (RD). This program is accredited by the Commission on Accreditation for Dietetics Education. NEP also offers an MS in Nutrition and Exercise Physiology. Both MS degree programs include integrated coursework in nutrition and exercise, providing a spectrum of opportunities for professional credentialing as well as for training in basic, clinical, and community research. Complete information on admission and program requirements may be found in this catalog under departmental listings and on our web site.

**Pharmaceutical Sciences**

This research-oriented program in pharmaceutical sciences prepares students for careers in independent research and teaching and other related areas. Our graduates have been successfully placed in careers in universities and colleges, the pharmaceutical and biotech industries, and federal and state agencies. The application period each academic year is from October 1 to January 10. Applications for admission to the program 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), 250 (computer-based TOEFL) or 100 (Internet based TOEFL) are required. Applications should be emailed to: drhowe@wsu.edu. Students entering the program should have completed undergraduate work in biology, chemistry (including organic chemistry and biochemistry), mathematics (through calculus), and upper level division level organ/mammalian physiology course, and an undergraduate statistics course. A bachelor's degree is required for admission to the PhD. program. Applicants apply on-line through the Graduate School.

**Health Policy and Administration**

The program is one of four in the fourteen-state western region accredited by the Commission on Accreditation of Healthcare Management Education (CAHME). 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 to promote healthier communities. The primary mission of the Department of Health Policy and Administration graduate program is (1) to prepare working students in metropolitan Spokane, eastern Washington, and the Inland Northwest region and students 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. HPA students must complete a total of 50 semester hours. Through the core courses, students develop basic understanding and experience in managing health care systems in the context of enhancing community health status. A multidisciplinary systems perspective helps students develop knowledge and skills in communication, ethics, interpersonal relations, team-building, management, and delivery of cost-effective health care. Internships, fellowships, research assistantships, and special projects enhance the experience of HPA students. The time required for completion of the program will vary for each student, depending on course load. The minimum for a full-time student is likely to be two years. For inquiries, contact Joseph S. Coyne, Dr. PH., Interim Chair and Professor; 509-358-7981; jsco@wsu.edu; or [www.spokane.wsu.edu/academics/health_sciences/hpa/](http://www.spokane.wsu.edu/academics/health_sciences/hpa/).
Degrees
The College of Pharmacy offers the following degree programs:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Area</th>
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</thead>
<tbody>
<tr>
<td>Bachelor of Science</td>
<td>Nutrition and Exercise Physiology</td>
</tr>
<tr>
<td></td>
<td>Health Policy and Administration</td>
</tr>
<tr>
<td>Master of Health Policy</td>
<td>Human Nutrition</td>
</tr>
<tr>
<td>and Administration</td>
<td>Nutrition and Exercise Physiology</td>
</tr>
<tr>
<td>Master of Science</td>
<td>Pharmaceutical Sciences</td>
</tr>
<tr>
<td>Doctor of Pharmacy</td>
<td>Pharmacy</td>
</tr>
<tr>
<td>Doctor of Philosophy</td>
<td>Nutrition and Exercise Physiology</td>
</tr>
<tr>
<td></td>
<td>Pharmaceutical Sciences</td>
</tr>
</tbody>
</table>

COLLEGE OF SCIENCES

Daryll B. DeWald, 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 Microscopy and Imaging 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, and graphics.

Major research areas in the college include shock physics, molecular and atomic interactions on surfaces, continuum mechanics, avian environmental physiology, regulation of cellular growth and differentiation, 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, chemotaxis, coevolution of plants and animals, and reproductive biology.

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:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Department or Area</th>
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<tbody>
<tr>
<td>Bachelor of Science</td>
<td>Biology</td>
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<td></td>
<td>Chemistry</td>
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<tr>
<td></td>
<td>Environmental Science</td>
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<td></td>
<td>Geology</td>
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<td></td>
<td>Mathematics</td>
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<td></td>
<td>Physics</td>
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<tr>
<td>Master of Science</td>
<td>Sciences—General Studies</td>
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<tr>
<td></td>
<td>(includes Basic Medical Science;</td>
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<tr>
<td></td>
<td>Biological Sciences; Mathematics;</td>
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<tr>
<td></td>
<td>and Physical Sciences)</td>
</tr>
<tr>
<td>Doctor of Philosophy</td>
<td>Zoology</td>
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<tr>
<td></td>
<td>Botany</td>
</tr>
<tr>
<td></td>
<td>Chemistry</td>
</tr>
<tr>
<td></td>
<td>Environmental Science</td>
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<td>Geology</td>
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<td></td>
<td>Mathematics</td>
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<tr>
<td></td>
<td>Molecular Plant Sciences</td>
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<td></td>
<td>Physics</td>
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<tr>
<td></td>
<td>Plant Physiology</td>
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<tr>
<td></td>
<td>Statistics</td>
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<td></td>
<td>Zoology</td>
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<tr>
<td></td>
<td>Botany</td>
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<tr>
<td></td>
<td>Chemistry</td>
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<tr>
<td></td>
<td>Environmental and Natural Resource</td>
</tr>
<tr>
<td></td>
<td>Sciences</td>
</tr>
<tr>
<td></td>
<td>Geology</td>
</tr>
<tr>
<td></td>
<td>Materials Science</td>
</tr>
<tr>
<td></td>
<td>Mathematics</td>
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<tr>
<td></td>
<td>Molecular Plant Sciences</td>
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<td></td>
<td>Physics</td>
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<tr>
<td></td>
<td>Plant Physiology</td>
</tr>
<tr>
<td></td>
<td>Zoology</td>
</tr>
</tbody>
</table>

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.

UNIVERSITY COLLEGE

Mary F. Wack, Dean
French Administration, Room 436
509-335-8044
www.universitycollege.wsu.edu

The University College is a non-degree-granting college that supports all undergraduates at WSU. There are no admission requirements; any student can access the various programs and courses offered by the college. The University College recognizes the importance of partnership with parents and families to ensure student success, and offers programming to assist parents and families to support their students' degree completion. Faculty and staff of the University College engage in more than 225,000 student and parent contacts each year, and 2,300 students enroll in University College courses annually. The University College creates an atmosphere that minimizes anxiety, promotes student action and lifelong learning, and prepares students to succeed.
The University College offers a welcoming home for new students. It provides a dynamic and engaging first-year experience through orientation programs, Convocation, the Common Reading program, and learning communities such as Freshman Focus and the Pathways to Academic Success Seminar. It promotes student achievement through both general and targeted programs, including general academic advising and career development, specialized advising for pre-medical and pre-health sciences students, writing assistance, and general tutoring. Special programs and opportunities are offered to transfer students, to students wishing to compete for distinguished national and international scholarships, and to students desiring to engage in research, scholarship, or creative activity.

The College's curriculum is open to all students. One- and two-credit courses are designed to fit student schedules and can be paired with other University College courses or courses in the major for high-impact learning. Overall, the curriculum assists students in gaining the skills for effective decision-making to manage key transitions of the college years: from high school or a community college to a research university, transition into a major, and transition from college into a career. Active and collaborative learning environments develop teamwork and leadership skills while also fostering positive relationships with a diverse community of peers, faculty, and advising staff. Students' progress in their degree programs is supported by these courses' focus on developing critical thinking, analytical, and information skills, as well as their strong written and oral communications components. Frequent reflective assignments assist students in integrating their college experiences with their developing sense of personal and social responsibility and self-direction.

**COLLEGE OF VETERINARY MEDICINE**

Bryan Slinker, Dean  
Bustad Hall, Room 110  
509-335-9515  
www.vetmed.wsu.edu

Faculty and curricula within the College of Veterinary Medicine provide a challenging, hands-on education for students in the life and biomedical sciences. Both undergraduate and graduate degree programs within the college include classroom instruction, seminars, special projects, and research, which together provide the education needed to meet society's needs.

The Undergraduate students planning to pursue advanced work in graduate or professional schools are advised to plan curricula to meet admission requirements for advanced study. Many undergraduate majors conduct research projects under the supervision of a faculty member. In fact, this hands-on introduction to scientific discovery is a hallmark of these programs. Creative programs (such as the STARS program) are designed to facilitate the transition from undergraduate to graduate programs.

Graduate students are prepared for many exciting careers in life and health sciences by engaging in cutting-edge research in many areas, including regulation of cellular growth and differentiation, genetic engineering, chromosome biology, protein synthesis and export, repair of DNA, cancer cell biology, biochemical mechanism of muscle contraction, chemotaxis, coevolution of plants and animals, reproductive biology, immunology, infectious diseases of humans and animals, cellular and systems neurosciences, and global health.

The Doctor of Veterinary Medicine (DVM) curriculum of the College of Veterinary Medicine prepares students for positions in many areas of veterinary medicine, e.g., private practice, federal and state disease regulatory programs such as the USDA and CDC, industry, teaching, research, and military services. DVM students may also engage in research as part of their education. The DVM degree is recognized by all state and territorial licensing boards, as well as those in foreign countries, and is fully accredited. Complete information on DVM admission and program requirements may be found in this catalog under departmental listings and on our website.

Many of the college's faculty have attained national and international reputations and have received numerous honors and awards. These include election to the IOM and as fellows of the AAAS, state and national teaching awards, national career development awards, and National Institutes of Health Merit Awards. Faculty frequently serve on national review panels of granting agencies for instructional and research support, as well as on editorial boards of international journals.

**Degrees**

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

**Doctor of Veterinary Medicine**  
Veterinary Medicine  
Biochemistry  
Genetics and Cell Biology  
Microbiology  
Neuroscience  
Molecular Biosciences  
Veterinary Science

**Master of Science**  
Molecular Biosciences  
Neuroscience  
Veterinary Science

**Doctor of Philosophy**  
Molecular Biosciences  
Neuroscience  
Veterinary Science

**Regional Program in Veterinary Medical Education**

Washington State University's DVM education program is offered in a regional partnership with the University of Idaho and Utah State University. This regional program involves instruction on the WSU campus, at Utah State University (Logan, UT), and at the Caine Center in Caldwell, ID (UI). Specific quotas of students to be admitted from Idaho and Utah have been established under the terms of these agreements. In addition, the College of Veterinary Medicine at Washington State University is a partner in the Western Interstate Commission for Higher Education (WICHE) with the states of Arizona, Hawaii, Montana, New Mexico, Nevada, North Dakota, and Wyoming. Under the terms of this compact, a student certified and admitted as a resident from one of these states is sponsored financially by their home state and is thus subject only to the same fees as Washington resident students. Students must apply to their home state for WICHE certification in addition to applying to the College of Veterinary Medicine at Washington State University. Additional information regarding WICHE 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.
Online Education and Regional Campuses

CENTER FOR DISTANCE AND PROFESSIONAL EDUCATION
Dave Cillay, Executive Director
106 Van Doren Hall, Pullman, WA 99164-5210
www.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. WSU Online (formerly DDP) offers degree programs, certificates, and professional development non-credit programs delivered in online formats. Conference Management 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.

Program Strengths—
• The research and academic expertise of Washington State University stand behind the institution’s online programs.
• WSU’s online 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 for students and alumni to connect to the WSU community are an integral part of the online programs. These include online student government, events at sites around Washington, 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 online professional development programs also offer students a connection with real world audiences and issues of importance to society. For all CDPE programs, support services assure that students and professional clients receive the help they need to succeed in their programs.

WSU Online—Working in partnership with WSU academic departments and colleges, WSU Online delivers undergraduate online degree programs that are an ideal choice for working adults who are seeking a program that offers both flexibility and high quality. Students may pursue a Bachelor’s Degree in seven academic areas: social sciences, criminal justice, humanities, management and operations, management information systems, accounting, and human development. A variety of online certificates are also available. Online graduate programs are available in agriculture, engineering and technology management, and molecular biosciences; an online MBA is also offered. A combination of online and on-site delivery options are used to provide graduate and undergraduate education programs related to teaching. Additional programs are currently under development.

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

Conference Management—CDPE provides educational programs for professionals in the workplace throughout the state, region, and nation through its Conference Management unit. Programs are offered through a variety of delivery methods such as seminars, conferences, and hands-on workshops. An experienced and creative staff provides a full range of conference support services, including marketing and publicity, registration and financial management, and vendor contract negotiation and coordination. Customized programs are created by WSU faculty and outside content experts, in partnership with Conference Management staff, to provide up-to-date knowledge and skills to professionals in business, industry, education, government, non-profit organizations, and trade associations. 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 website at www.conferences.wsu.edu for information about available programs.

SPOKANE CAMPUS
www.spookane.wsu.edu
Brian Pitcher, Chancellor
WSU Spokane Admissions
PO Box 1495
Spokane, Washington 99210-1495
509-358-7978

WSU Spokane provides graduate and upper-division undergraduate programs in a number of specialty fields, including health sciences, design, education, and criminal justice. It combines the resources of a nationally ranked public research university with the opportunities provided by its urban setting to create an ideal learning atmosphere. 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. 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.

There is a growing focus on the health sciences at WSU Spokane. The campus is the site of the final stages of professional education for all WSU students enrolled in pharmacy, and since the completion of the new Nursing Building in late 2008, has been home to more than 600 undergraduate and graduate nursing students. Since fall 2008, WSU Spokane houses a cohort of 20 first-year medical students who are part of the WWAMI program, a partnership between universities and governments of the five participating states (Washington, Wyoming, Alaska, Montana and Idaho) to make medical education accessible to Northwest students. Other health sciences programs offered by WSU at the Spokane Campus include baccalaureate completion degree programs in nutrition exercise and physiology, and speech and hearing sciences, as well as graduate programs in exercise science and speech and hearing sciences.

Health sciences students enjoy opportunities to participate in the world-class research being conducted at WSU Spokane in the areas of sleep and neuroscience, chromosome biology, and substance abuse, among others. Through campus partnerships with the medical community in the Spokane area—considered to be the Inland Northwest’s premier health care center—they also have a wide choice of sites for clinical placements and internships.

Created to foster collaborative learning among the design disciplines, the Interdisciplinary Design Institute at WSU Spokane brings together undergraduate students in interior design and graduate students in architecture, interior design, and landscape architecture to advance knowledge that enhances the quality of people’s lives in the built and natural environment. As part of their experience, students tackle real-life design challenges that build their professional skills while serving the community.
Education offerings at WSU Spokane focus on educational leadership and include master's and doctoral programs and certificate programs for aspiring principals, program administrators, and superintendents. Spokane program options also include a Master of Teaching. The College of Education is a key player in the Riverpoint Partnership for Math and Science, a collaboration between Spokane area high schools and colleges to help all students become proficient in math and science.

Managers and other business professionals can build on their skills through a master of health policy and administration program. Master's and doctoral degrees in criminal justice are also available.

Students at WSU Spokane range from full-time, traditional students to working adults balancing family responsibilities and community involvement with their studies. More than 1,500 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.

TRI-CITIES CAMPUS

www.tricity.wsu.edu
Vicky L. Carwein, Chancellor
WSU Tri-Cities
2710 University Drive
Richland, WA 99354-1671
509-372-7250

Situated along the banks of the Columbia River in Richland, Washington State University Tri-Cities delivers undergraduate and graduate education to more than 1,500 students in the Mid-Columbia Basin and surrounding region. Undergraduate degrees may be earned in Business, Education, Engineering and Computer Science, Liberal Arts, Sciences and Agriculture, and Nursing. The campus works very closely with the region's community colleges to ensure that students can easily transfer to WSU Tri-Cities.

Students may earn graduate degrees in biology, business administration, chemistry, computer science, education (principal & administration, counseling, educational leadership, ELL/bilingual, curriculum and instruction, and literacy), electrical engineering, environmental engineering, environmental science, mechanical engineering, and nursing. Doctoral degrees are offered in computer science, electrical engineering, environmental and natural resources sciences, and mechanical engineering.

Much of the research conducted at Washington State University Tri-Cities responds to the unique needs of the region. The WSU Center for Bioproducts and Bioenergy collaborates with the Pacific Northwest National Laboratory and state, national, and international industry in bioproducts and bioenergy research and education. The Center is housed in the Bioproducts and Engineering Laboratory, operated jointly with the Pacific Northwest National Laboratory, conducts world-class research and development of bioproducts, bioenergy and the development of technologies to convert biomass to products and fuels. The Food and Environmental Quality Laboratory (FEQL) and the Washington State Pest Management Resource Service are also located on the campus. FEQL assists farmers, orchardists, and other pesticide users with residue analyses and risk-benefit assessments. 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, other Hanford Site contractors, and many local businesses and agencies. The site contractors provide valuable expertise, facilities, and equipment not available at most universities. The WSU Tri-Cities' library and the Pacific Northwest National Laboratory Library are co-located on campus in the Consolidated Information Center, providing greater access to library materials for WSU students, faculty, Hanford Site personnel, and the public.

Public radio and television 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. Three GEAR-UP programs (Gaining Early Awareness and Readiness for Undergraduate Program) help prospective students from first-generation and low-income understand the importance of higher education and how to prepare for college.

VANCOUVER CAMPUS

www.vancouver.wsu.edu
Harold Dengerink, Chancellor
14204 NE Salmon Creek Avenue
Vancouver, WA 98686
360-546-WSUV (9786)

Located on 351 scenic acres just 10 miles north of Portland, Oregon, Washington State University Vancouver provides quality education to the residents of Southwest Washington and the Portland metropolitan area. With a student population of more than 3,000, WSU Vancouver offers a small college atmosphere with public university access. Since its establishment in 1989, WSU Vancouver has graduated more than 8,000 alumni, 75 percent of whom currently live and work in the region.

Degree Programs—Students may choose to pursue one of 18 bachelor's, 10 master's degrees, or one doctorate degree through freshman, sophomore, junior, senior, and graduate-level courses in more than 36 fields of study. Bachelor's degrees include anthropology, biology, business administration, computer science, digital technology and culture, education, electrical engineering, English, environmental science, history, human development, humanities, mechanical engineering, nursing, psychology, public affairs, social sciences, and sociology. Within these degree programs, students may concentrate their studies in a variety of areas, from anthropology to women's studies.

Master's degrees include accounting (M.Acc), business administration (MBA), computer science (MS), education (Ed.M.), environmental science (MS), history (MA), mechanical engineering (MS), nursing (MN), public affairs (MPA), and teaching (MIT).

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

Campus and Student Life—The WSU Vancouver campus features eight academic buildings, a bookstore, cafeteria, student commons and student services center, study hall areas, outdoor athletics court, fitness center, art galleries, and a system of biking and pedestrian trails, all framed in a beautiful campus setting between scenic views of Mount Hood and Mount St. Helens. Facilities also include computer, engineering, multimedia, nursing, psychology, and science laboratories, as well as a library stocked with more than 30,000 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 50 recognized student organizations that make it easy for students to connect with others who share their passion. A student paper and student-run radio station are only the beginning. Weekend snowboarding, skiing and rock climbing trips, and intramural sports are also popular with students.

A child development program and kindergarten on campus provides onsite childcare and learning opportunities for students, faculty, and community members with young children.

Faculty and Research—More than 130 Ph.D. faculty provide WSU Vancouver with academic expertise spanning a variety of subjects. Quality instruction and an emphasis on individual attention are hallmarks of the WSU Vancouver student experience. The student/faculty ratio is approximately 15 to 1. 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. Some of the most complex and difficult issues of the modern world are tackled in classrooms and laboratories on campus. Students work alongside world-class research faculty as they study such areas as global climate change, domestic violence, criminal justice, child psychology, education, public affairs, and genetics, among others.

Community Partnerships—As a vital, vibrant institution in Southwest Washington, WSU Vancouver seeks to enrich the intellectual, social and cultural life of the citizens of the region.

And while WSU Vancouver provides service to the community in a variety of ways, the reverse is also true. The health of our financial systems, public schools, transportation systems, employment opportunities, healthcare and social services contribute to the university's ability to succeed. WSU Vancouver thrives when the community thrives.
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 Vancouver graduate students 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, 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.
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 Center for Advising and Career Development 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 Fee information at www.wsu.edu/studacct/tuitionfees.htm.

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 Deferments: Deferments 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 deferments, 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 a semester for an undergraduate student is 12 hours, three-quarter-time is 9-11 hours, half-time is 6-8 hours, less than half-time is 4-5 credits, and quarter-time is 1-3 credits. For graduate students, full-time enrollment for a semester is 10 hours, three-quarter-time is 7-9 hours, half-time is 5-6 hours, less than half-time is 3-4 credits, and quarter-time is 1-2 credits. Full time enrollment for summer session for undergraduate students and graduate students is based on the number of credits taken and the length of the class. 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.

Auditng
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.

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 Center for Advising and Career Development.

A student who has completed 60 semester hours should be certified in a major. The student initiates the certification procedures at the Center for Advising and Career Development (CACD), 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, digital technology and culture, 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 atWSU 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.
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.

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.0</td>
</tr>
<tr>
<td>A-</td>
<td>3.7</td>
</tr>
<tr>
<td>A+</td>
<td>4.3</td>
</tr>
<tr>
<td>B+</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>2.3</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td>C-</td>
<td>1.7</td>
</tr>
<tr>
<td>D+</td>
<td>1.3</td>
</tr>
<tr>
<td>D</td>
<td>1.0</td>
</tr>
<tr>
<td>D-</td>
<td>0.7</td>
</tr>
<tr>
<td>F</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Guidelines for grading assignments under special circumstances:

- **Incomplete (I)**—No credit; 0 grade points. (Credits attempted are calculated in GPA) Fail. Students are not permitted to retake an incomplete course; a second I grade is not allowed. Incompletes are recorded on the official transcript, the student must apply for the certificate through the Registrar's Office and pay the $50 fee.

- **Withdrawal (W)**—No credit; 0 grade points. (Credits attempted are calculated into the GPA) Fail. Works in the professional curriculum on a pass, fail basis, subject to the regulations listed above. All incomplete work must be completed and posted to the official transcript prior to the conferral of the degree. Students have one year to complete the course, unless a shorter limit. See Appendix, Rule 90, listed in the Appendix. 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.

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 Schedule of Classes. 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, failure 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 regulations listed above. All incomplete work must be completed and posted to the official transcript prior to the conferral of the degree. Students have one year to complete the course, unless a shorter limit. See Appendix, Rule 90, listed in the Appendix. 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.

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.

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 5422</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 the zzusis portal.
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.

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.

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 Schedule of Classes. 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 Schedule of Classes. 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.

WSU Tuition Fee Waiver Program
A tuition 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.

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 any public law enforcement agency or full-time or volunteer fire department in the state of Washington may be eligible for a partial tuition waiver. Washington State law defines a totally disabled individual for waiver purposes as a person who

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has become permanently disabled for life by bodily injury or disease and is thereby prevented from performing any occupation or gainful pursuit. 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.

Credit by Examination
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. See Appendix, Rule 15c.

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, provided that the semester GPA is 3.0 or better.

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.

Students having complaints about academic advising should refer them first to the advisor. If the complaint is not resolved, then the student may refer the complaint and remedy sought, in writing, to the chairperson or director of the unit to which the advisor reports. After the chair’s decision, the student may appeal to the Dean’s office within 20 days. The written statement should describe the complaint, indicate how it affects the student, and include the remedy sought from the Dean’s office. The decision from the Dean’s office is the final step. The University Ombudsman is available at any stage for advice or assistance in resolving advising complaints.

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. The first time an undergraduate student has failed to maintain a 2.00 semester or cumulative grade point average, he/she must complete an application and an interview through the Center for Advising and Career Development on the Pullman campus, the WSU Online program, or the designated office on other campuses (Rule 38). An undergraduate student who is second or subsequently deficient, and has failed to maintain a 2.00 semester or cumulative GPA will be dismissed from the University (Rule 39). Students who are dismissed from the University are required to remain out of WSU for one academic year. Students seeking future reinstatement may apply for reinstatement 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 taken while 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. 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 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. Waivers of specific requirements within courses must be approved by the department teaching the course. A request for waiver of University requirements must be made directly to the General Education Director and be approved by the student's department chair and college dean. Petition forms for waiving University and college requirements are available in the Registrar's Office. See Appendix, Rule 106.

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 degree 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 elapses between certification and graduation, the major and specific college requirements in place four years prior to graduation will apply.

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 provides an overall view of the programs and courses at the University and the rules that pertain to admissions, registration, and graduation. The General Catalog is published annually online in July, at 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 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 and revisions to the printed Graduate Catalog and to the information from the Graduate Catalog that is published on the web site.

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 personal 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 Graduate 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. 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).

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**College of Communication**
**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 Communication, 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**—Two years of one HS Foreign Language (includes ASL or NAL), or two college semesters (two quarters) of one Foreign Language (includes ASL or NAL), or Foreign language proficiency not based on HS or college instruction. Documentation or testing required for all.

Notes: A foreign language course taken in eighth grade may satisfy one year of the requirement if the second year is completed in high school. If only one year is completed in high school, a WSU student must complete an additional semester (e.g. SPAN 102) or transfer an additional college-level quarter or semester in the same foreign language.

International students who have completed formal instruction in their primary language as well as formal instruction in English as a second language in their secondary education have met the intent of the foreign language requirement. (Records indicating the successful completion of both languages are required to document the foreign language requirement).

Transfer students are responsible for meeting the above 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.
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.

The Center for Advising and Career Development (CADC) at Washington State University (WSU) helps students create short and long-term plans to build the foundation to their education and future careers. All students are required to meet with an academic advisor each semester to discuss academic and career direction. The CADC offers students a variety of services, programs, and resources to aid in completion of academic courses, cultivate skill sets, and gain experience marketable to future employers.

The CADC academic advisors and career counselors engage students in critical thinking about career development and required components of a degree at WSU. The CADC recommends that students gain experiential learning, through an internship, summer position, volunteering/community service, and/or study abroad. This provides a strong professional background that enables students to move toward a career, with confidence in the ability to function in a complex, global, and diverse world of work.

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 how 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 an advisor (minimum one per semester).
- Clarify personal values and goals and provide the advisor with accurate and truthful information regarding 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 the advisor.
- Discuss any problems that effect academic performance, for example: study skills, difficulties in 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 progress toward academic goals. Be proactive in checking the electronic resources (DARS) to keep track of academic progress.
- Accept responsibility for decisions and actions that affect your educational progress and goals.

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

Choosing a Major

Washington State University has ten degree-granting colleges. Colleges are divided into various departments that offer majors. A major is a set of courses that is an in-depth study of an academic area.

Choosing a major is an important decision for students. Identifying academic and personal interests and abilities help students narrow the field of choices. From there, selecting courses in different areas enables students to learn more about a specific major. Choosing a major does not have to be an immediate decision. Often students find a passion while completing General Education courses or elective courses. Taking time to investigate different majors and careers is essential to make an appropriate choice. Typically, students are more successful if a chosen major is well-suited to skills and abilities. Further, students who are academically successful are more likely to be competitive in the job market and when pursuing graduate degrees. The Center for Advising and Career Development assists students in major and career selection through individual career counseling, courses such as College Majors and Career Choice (UColl 100/101), or through the resources at the center.

University Certification Requirements

Entering students may identify an area of interest. Students are assigned an advisor in the major interest area by the Center for Advising and Career Development. This advisor can be changed if the original interest should change. Students who do not specify a major interest area will be assigned 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. Some departments have additional certification requirements and may require a higher minimum cumulative GPA and require specific courses. Consult the departmental section of the catalog for specific departmental requirements. 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 completion of 60 semester hours. Approved minors are identified in the departmental section of this catalog. Consult with an advisor or the department for more information.

How is a major related to a career?

Today’s workplace is changing rapidly. Most adults change careers several times over the course of their working lives. A well-chosen major will prepare students to do well in many occupations, because it will provide problem-solving, critical thinking, and communication skills necessary to succeed. Some jobs require specific college majors; others do not.

Courses that students complete for their degrees will provide them with skills and knowledge to last a lifetime, no matter how much the workplace may change. As students complete General Education Requirements and major courses, they 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.

Take a good look at what’s out there

The Center for Advising and Career Development has many resources and programs to help students with career planning. Experienced counselors and advisors are available to help with academic major and career decisions. They help students examine values, interests, and abilities, locate current career information, and identify various influences that affect decision-making. Vocational testing can also be arranged. The CADC also provides information about internships opportunities that can enhance an academic major.

Students should use this catalog and other resources to identify departmental or General Education courses that sound interesting. Consult with various departments regarding courses or programs that meet interests and abilities. Students may also access departmental information through the WSU homepage at www.wsu.edu. Finally, working carefully with an academic advisor will aid in building a degree at Washington State University.
Undergraduate Degrees, Majors, and Options

The following are the undergraduate degrees offered at Washington State University. Following the degree, majors are listed with bullets, and any options offered within the major are noted in parenthesis. Degrees that are offered exclusively at the regional campuses (Spokane, Tri-Cities, Vancouver, or through the Distance Degree Programs) are noted. Not all degrees or majors listed are offered at every WSU campus. Students with questions about degree programs should consult with a representative at the specific campus for additional information.

College of Agricultural, Human, and Natural Resource Sciences

Agricultural and Food Systems, Bachelor of Science
- Agricultural and Food Business Economics
- Agricultural Education
- Agricultural Technology and Production Management
- Agriculture and Food Security
- Organic Agriculture Systems

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

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

Economic Sciences, Bachelor of Science

Food Science, Bachelor of Science
- Food Science

Human Development, Bachelor of Arts
- Human Development (options: General, and Family and Consumer Science)

Integrated Plant Sciences, Bachelor of Sciences
- Agricultural Biotechnology
- Field Crop Management
- Fruit and Vegetable Management
- Landscape Design and Implementation
- Landscape, Nursery, and Greenhouse Management
- Turfgrass Management
- Viticulture and Enology

Interior Design, Bachelor of Arts
- Interior Design

Landscape Architecture, Bachelor of
- Landscape Architecture

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

College of Business

Business Administration, Bachelor of Arts
- Accounting
- 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
- Wine Business Management

College of Communication

Communication, Bachelor of Arts
- Communication (options: Advertising, Applied Intercultural, Broadcast News & Broadcast Production, 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
- Health and Fitness
- Movement Studies

Athletic Training, Bachelor of Science
- Athletic Training

Sport Management, Bachelor of Arts
- Sport Management

College of Engineering and Architecture

Architectural Studies, Bachelor of Science
- Architectural Studies

Bioengineering, Bachelor of Science
- Bioengineering (options: General, and Pre-Med)

Chemical Engineering, Bachelor of Science
- Chemical Engineering (options: General, and Pre-Med)

Civil Engineering, Bachelor of Science
- Civil Engineering (options: General, Environmental Engineering, Infrastructure Engineering, Structural Engineering, and Water Resources)

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

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 (options: Digital Technology and Culture, Pullman campus; and Creative Media and Digital Culture, Vancouver campus)

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 Studio 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)
- Spanish (options: General, and Teaching)

History, Bachelor of Arts
- History (options: General, Pre-Law, and Teaching)

Humanities, Bachelor of Arts
- Humanities (options: International Area Studies, Linguistics, Religious Studies)
Music, Bachelor of Arts
  • Music (BA)
Music, Bachelor of Music
  • Music (BMus) (options: Business, 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 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
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)
Nutrition and Exercise Physiology, Bachelor of Science (Pullman/Spokane)
  • Nutrition and Exercise Physiology (option: Dietetics)

College of Sciences
Biological Science, Bachelor of Science
  • Biology (options: General, Botany, Ecology and Evolutionary Biology, Entomology, and Pre-Physical Therapy, Pre-Occupational Therapy, Pre-Physician's Assistant, and Teaching)
Chemistry, Bachelor of Science
  • Chemistry (options: Materials, Professional, and Teaching)
Environmental Science, Bachelor of Science
  • Environmental Science
Geology, Bachelor of Science
  • Geology
Mathematics, Bachelor of Science
Physics, Bachelor of Science
  • Physics (options: Astrophysics, Biophysics, Computer Physics, Continuum Physics & Acoustics, Environmental, Materials Science, Mathematics, Nano technology, Optics & Electronics, Standard, Technical)
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
Biochemistry, Bachelor of Science
  • Biochemistry (options: Biochemistry/Biophysics, and Biochemistry / Molecular Biology)
Genetics and Cell Biology, Bachelor of Science
  • Genetics and Cell Biology
Microbiology, Bachelor of Science
  • Microbiology (options: General, and Medical Technology)
Neuroscience, Bachelor of Science
  • Neuroscience (options: Neuroscience, Computational Neuroscience, PreMed/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 the regional campuses are noted. Not all minors listed are offered at every WSU campus. Students with questions about degree programs should consult with a representative at the specific campus for additional information.

Minor
  Addiction Studies (Vancouver only)
  Aerospace
  Aging
  Agribusiness Economics
  Agricultural Systems
  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
  Construction Management
  Coordinated Program in Dietetics (Spokane only)
  Criminal Justice
  Crop Science
  Digital Technology and Culture
  Disability Studies
  Economics
  Electrical Engineering
  Engineering
  English
  Entomology
  Environmental and Resource Economics and Management
  Environmental Science
  Ethics
  Film Studies
  Forestry
  French
  French Area Studies
  Genetics and Cell Biology
  Geology
  Geospatial Analysis
  German

Department
  Psychology
  Aerospace
  Human Development
  Economics
  Agricultural and Food Systems
  General Studies, Liberal Arts
  American Studies
  Animal Sciences
  Anthropology
  Architecture and Construction
  Management
  Fine Arts
  Fine Arts
  Asia
  Physics
  Molecular Biosciences
  Biological Sciences
  Business
  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
  Health Sciences, Spokane
  Criminal Justice
  Crop and Soil Sciences
  Digital Technology and Culture
  Speech and Hearing Sciences
  Economic Sciences
  Electrical Engineering and Computer Science
  Engineering and Architecture
  English
  Entomology
  Economic Sciences
  Earth and Environmental Sciences
  Philosophy
  Foreign Languages and Cultures
  Natural Resource Sciences
  Foreign Languages and Cultures
  Foreign Languages and Cultures
  Molecular Biosciences
  Earth and Environmental Sciences
  Crop and Soil Sciences
  Foreign Languages and Cultures
### 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 the regional campuses are noted. Not all certificates listed are offered at every WSU campus. Students with questions about degree programs should consult with a representative at the specific campus for additional information.

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.

**Certificate Requirements** – A certificate requires a minimum of 15 credit hours with the exact number specified by the department offering the certificate. The maximum number of transfer credit hours that may apply towards a particular WSU certificate is ¼ of the total number of credit hours required for the certificate. The number of credit hours that may be taken for a Pass/Fail (or S/F) grade is ¼ of the total number of credit hours required for the certificate. The minimum GPA to earn a certificate is 2.0.

<table>
<thead>
<tr>
<th>Certificate</th>
<th>Department</th>
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<tbody>
<tr>
<td>Abnormal Child Psychology</td>
<td>Psychology</td>
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<tr>
<td>Adolescence</td>
<td>Human Development</td>
</tr>
<tr>
<td>American Indian Studies</td>
<td>General Studies</td>
</tr>
<tr>
<td>Child Development &amp; Care</td>
<td>Human Development</td>
</tr>
<tr>
<td>German Area Studies</td>
<td>Foreign Languages and Cultures</td>
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<td>International Programs</td>
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<td>Horticulture and Landscape</td>
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<td>Natural Sciences</td>
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<td>Naval Science</td>
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<td>Political Science</td>
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<td>Professional Writing</td>
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<td>Psychology</td>
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<td>Psychology</td>
<td>Rangeland Ecology and Management</td>
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<td>Natural Resource Sciences</td>
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<td>Native American Studies</td>
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<td>Crop and Soil Sciences</td>
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<td>Spanish</td>
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<td>Educational Leadership and</td>
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<td>Statistics</td>
<td>Counseling Psychology</td>
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<td>Sustainable Development</td>
<td>Statistics</td>
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<td>Economic Sciences</td>
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<td>Environmental Studies</td>
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<td>Zoology</td>
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<tr>
<td>Zoology</td>
<td>Biological Sciences</td>
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</table>

### 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 living in the same residence hall are co-enrolled in General Education courses. 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: University College, Center for Undergraduate Education, Room 305, 509-335-5488.

**The Pathways to Academic Success Seminar (PASS)** – PASS is a small interactive learning community facilitated by graduate level peers. Students who enroll in the two-credit PASS, UCOLL 104, participate in discussion, activities, and projects that provide an introduction to research, writing, and critical thinking and assists in the preparation for and transition to university life and academic expectations. Faculty and instructional librarians help assist students one-on-one with seminar projects. Contact: PASS Program Director, Center for Undergraduate Education, Room 519, 509-335-5699, pass.wsu.edu.

**Accessing Information for Research** – With sophomores standing and above, students may enroll in UCOLL 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.

**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.

**Study 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 650 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 the re-entry process. Contact: Education Abroad, Bryan Hall, Room 105, 509-335-6204, www.ip.wsu.edu/education_abroad.

**Writing Center:**

- **Free individual peer tutoring for writing** – Writing Center Tutors assist students with writing for all university courses. No appointment necessary. Both in-person and online tutoring available. Contact: WSU Writing Center, Center for Undergraduate Education, Room 403, 509-335-3628, www.writingprogram.wsu.edu.

- **Writing Tutorial** – Engl 102, 107, and 299 are one-credit courses offering students an opportunity to improve their ability to write in a student-centered group tutorial setting. The tutorial is connected to freshman writing courses. Contact: WSU Writing Center, Center for Undergraduate Education, Room 403, 509-335-6471.

<table>
<thead>
<tr>
<th>Certificate</th>
<th>Department</th>
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<tbody>
<tr>
<td>Abnormal Child Psychology</td>
<td>Psychology</td>
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<tr>
<td>Adolescence</td>
<td>Human Development</td>
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<tr>
<td>American Indian Studies</td>
<td>General Studies</td>
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<tr>
<td>Child Development &amp; Care</td>
<td>Human Development</td>
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<th>Undergraduate Certificates</th>
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<td>East Asian Studies for Engineering</td>
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<tr>
<td>Asia Program</td>
<td>and Architecture Majors</td>
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<tr>
<td>Human Development</td>
<td>Gerontology</td>
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<td>University College</td>
<td>Global Competencies</td>
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<td>Psychology</td>
<td>Global Leadership</td>
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<td>Molecular Biosciences</td>
<td>Helping Skills</td>
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<td>CAHNRS</td>
<td>Organic Agriculture</td>
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<td>English</td>
<td>Professional Writing</td>
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<td>Biology/Mathematics</td>
<td>Quantitative Biology</td>
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<tr>
<td>Teaching English as a Foreign Language</td>
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</table>
Advanced Writing Tutorial – UColl 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 complete writing assignments for various courses. This tutorial is open to multi-lingual and native speakers of English. Contact: WSU Writing Center, Center for Undergraduate Education, Room 403, 509-335-6471.

Learning Assistance

The Center for Advising and Career Development (CACD) 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 test-taking, note-taking, and learning skills for science. Other topics include stress and time management, how to choose a major, and preparation for academic advising. Students may benefit from the more in-depth look at tips and strategies covered in these workshops. There are also on-line tools designed to get students organized and ready for academic challenges. Students can browse through the Learning Assistance website universitycollege.wsu.edu/units/cacd to become familiar with the variety of services available.

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 students with assistance that enables them to develop academic mastery and independence. During tutorial appointments, students can get help on homework, help with understanding concepts necessary to pass courses, and useful study techniques. Tutoring helps students 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 is available from professors' and TAs' office hours.

The Peer Tutorial Program provides one-on-one assistance or small group tutoring in a wide range of subjects.

CCACD 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 universitycollege.wsu.edu/units/cacd also hosts a list of all free drop-in tutoring services available throughout the university. Contact: Center for Advising and Career Development, Lighty 180, 509-335-9603.

Other Learning Assistance Programs

Student Support Services Program (SSS) – SSS is a federally-funded TRiO academic assistance program. The program is designed to provide comprehensive academic support services on a one-to-one basis focusing on a student's personal, academic, and social success. Services include: academic/financial advising, college success workshops, career/personal counseling, free tutoring, mentoring, study skills training, cultural enrichment activities, scholarship opportunities, and referral services. To be eligible, students must be enrolled or accepted to WSU and meet one or a combination of the following criteria: first-generation college student (neither parent has received a baccalaureate degree), meet federal low-income guidelines, and/or have a documented disability. Students must also demonstrate an academic need. All services are provided at no cost to the participant. Interested students must submit a program application. Contact information: (509) 335-7324; Lighty Building, Room 260; 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 freshmen 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 aid services include: financial aid stipends up to $1,500; academic, career, and personal counseling; free tutoring; academic workshops and seminars; and referral services. For more information, visit us at www.camp.wsu.edu or call 509-335-4503.

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 Center for Advising and Career Development, Lighty 180, www.universitycollege.wsu.edu/units/cacd, 509-335-8065.
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 the WSU 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 into appropriate first-year writing course(s). 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 sessions of Alive! and during a session scheduled during the Week of Welcome in conjunction with the Honors College Orientation. 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.
   e. 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.

2. The University Writing Portfolio—Writing Assessment at Mid-Career
   For students who began their post-secondary coursework at a WSU-accredited institution during Fall semester 1991 or later, the University Writing Portfolio is a graduation requirement. 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.
University Graduation Requirements

**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]

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 101 or 105</td>
<td>3 cr</td>
</tr>
<tr>
<td>Choose one</td>
<td>3 cr</td>
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**World Civilization** [A]

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>GenEd 110</td>
<td>3 cr</td>
</tr>
<tr>
<td>GenEd 111</td>
<td>3 cr</td>
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</tbody>
</table>

**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

**Arts and Humanities** [H][G] *or* **Social Sciences** [S][K]

Choose one 3 cr

**Intercultural Studies** [I][G][K]

Choose one 3 cr

**Sciences** [B][P][Q]

10 semester credits including 1 hour of lab (L). At least 3 credits must be Biological Sciences [B] and 3 credits must be Physical Sciences [P].

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose one lab science (L)</td>
<td>4 cr</td>
</tr>
<tr>
<td>Choose one</td>
<td>3 or 4 cr</td>
</tr>
<tr>
<td>Choose one</td>
<td>3 or 4 cr</td>
</tr>
</tbody>
</table>

**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 3 cr

### Additional graduation requirements

**COLLEGE OF SCIENCES**

**COLLEGE OF LIBERAL ARTS**

**COLLEGE OF COMMUNICATION**

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 6 semester credits of [H,G,I,S,K]**

- For a total of 18 semester credits in [H][G][I][S][K] courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Choose one [H,G,I,S,K]</td>
<td>3 cr</td>
</tr>
<tr>
<td>Choose one [H,G,I,S,K]</td>
<td>3 cr</td>
</tr>
</tbody>
</table>

**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**

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 Center for Advising and Career Development
The General Education Program

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 curriculum provides a degree 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 opportunities for introspection and testing one’s own values as well as 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 General Education Program

Students are required to take a minimum of 40 credit hours distributed among the categories listed below.

<table>
<thead>
<tr>
<th>General Education Grade</th>
<th>Tier Hours</th>
<th>Details</th>
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<tbody>
<tr>
<td>Tier I: 15 credit hours</td>
<td></td>
<td>World Civilizations [A] GenEd 110 and 111 6</td>
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<tr>
<td></td>
<td></td>
<td>Written Communication [W] 3</td>
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<tr>
<td></td>
<td></td>
<td>Mathematics Proficiency [N] 3</td>
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<tr>
<td></td>
<td></td>
<td>Sciences [Q] 3</td>
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<tr>
<td>Tier II: 22 credit hours</td>
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<td>Arts and Humanities [H], [G] 3</td>
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<td></td>
<td></td>
<td>Social Sciences [S], [K] 3</td>
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<tr>
<td></td>
<td></td>
<td>Intercultural Studies [I], [G], [K] 3</td>
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<td></td>
<td></td>
<td>Sciences [B], [P] 7</td>
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<tr>
<td>Tier III: 3 credit hours</td>
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<td>American Diversity course [D] 3</td>
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<tr>
<td></td>
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<td>total hours 40</td>
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</table>

1 A total of 9 hours of Arts and Humanities and Social Sciences with a minimum of 3 in either.
2 At least 3 hours in Biological Science and 3 hours in Physical Science plus 1 additional hour for three clock hours per week of laboratory.
3 To 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 of 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. Students may take Tier III courses only after earning 60 total hours.

10. **The University Writing Portfolio**—Successful completion of the WSU Writing Portfolio is a requirement for graduation at WSU. 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. This is an upper-division requirement not satisfied by approved AA/AS degrees. For more information, visit www.juniorportfolio.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), and Tier III courses as approved by the student’s major department.
The General Education Program

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]

Tier I

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<tr>
<th>Course</th>
<th>Title</th>
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</thead>
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<td>Engl 101</td>
<td>Introductory Writing</td>
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<tr>
<td>Engl 105</td>
<td>Composition for ESL Students</td>
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</table>

Tier II

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<td>Engl 200</td>
<td>Expository Writing</td>
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<td>Engl 201</td>
<td>Writing and Research</td>
</tr>
<tr>
<td>Engl 298</td>
<td>Writing and Research Honors</td>
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<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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<td>UColl 303</td>
<td>Composing and Evaluation Strategies</td>
</tr>
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</table>

COMMUNICATION PROFICIENCY [C]

Tier II

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<thead>
<tr>
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<th>Title</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>
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<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>
</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).

Tier I

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</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>

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>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>Am St/Engl/Hist/W St 216</td>
<td>American Cultures</td>
</tr>
<tr>
<td>Am St 473</td>
<td>Arts in American Cultures</td>
</tr>
<tr>
<td>Am St 474</td>
<td>Social Movements and US Culture</td>
</tr>
<tr>
<td>Am St/Engl 475</td>
<td>Digital Diversity</td>
</tr>
<tr>
<td>AMT 417</td>
<td>Social and Psychological Aspects of Dress</td>
</tr>
<tr>
<td>Anth/W St 214</td>
<td>Gender and Culture in America</td>
</tr>
<tr>
<td>Anth 327/CES 378</td>
<td>Contemporary Native Peoples of the Americas</td>
</tr>
<tr>
<td>Anth 334</td>
<td>Time and Culture in the Northwest</td>
</tr>
<tr>
<td>CES 111</td>
<td>Introduction to Asian/Pacific American Cultures</td>
</tr>
<tr>
<td>CES 131</td>
<td>Introduction to Black Studies</td>
</tr>
<tr>
<td>CES/W St 235/Hist 205</td>
<td>African American History</td>
</tr>
<tr>
<td>CES/Engl 220</td>
<td>Introduction to Multicultural Literature</td>
</tr>
<tr>
<td>CES 254</td>
<td>Comparative Latino/a Cultures</td>
</tr>
</tbody>
</table>

H D 205         Communication in Human Relations
Span 361        Spanish for the Business Professions
Span 362        Spanish for Health Professions
Span 363        Spanish for Law Enforcement
Span 364        Spanish for Veterinarians
Span 365        Spanish for Translation and Interpretation Professions
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

Engr 107
Introductory Mathematics for Engineering Applications
Math 105
Exploring Mathematics
Math 140
Mathematics for Life Scientists
Math 171
Calculus I
Math 202
Introduction to Mathematical Analysis
Math/Stat 205
Statistical Thinking
Math 206
Mathematical Analysis for Architects
Math 251
Fundamentals of Elementary Mathematics I

and

Math 252
Fundamentals of Elementary Mathematics II
Stat/Math 212
Introduction to Statistical Methods

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]

Arch/I D 202
The Built Environment
Arch 220
Architectural History I
Arch 221
Architectural History II
CES/Engl 220
Introduction to Multicultural Literature
CES 235/His 205/W St 235
African American History
CES 336
Black Popular Culture
CES 338
African American Cinema
CES 379
Indigenous Film
DTC 375
Language, Texts, and Technology
Engl 108
Introduction to Literature
Engl 110
Reading Now
Engl 199
English Composition and Literature Honors
Engl 205
Introduction to Shakespeare
Engl 210
Readings in American Literature
Engl 305
Shakespeare
Engl 306
Introduction to Literary Criticism
Engl/W St 309
Women Writers
Engl 317
Gay and Lesbian Literature
Engl/Hum 335
The Bible as Literature
Engl 336
Composition and Design
Engl 361
Everyday Rhetorics
Engl 366
The English Novel to 1900
Engl 368
The American Novel to 1900
Engl 375
Language, Text, and Technology
F A 101
Introduction to Art
<table>
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<tr>
<th>Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>F A 201</td>
<td>World Art History</td>
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<tr>
<td>F A 202</td>
<td>World Art History</td>
</tr>
<tr>
<td>F A 303</td>
<td>Modern Art—19th Century</td>
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<tr>
<td>F A 304</td>
<td>Modern Art—20th Century</td>
</tr>
<tr>
<td>F A 305</td>
<td>Arts of Ancient Greece and Rome</td>
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<tr>
<td>F A 307</td>
<td>The Arts of Renaissance Europe</td>
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<tr>
<td>F A/W St 308</td>
<td>Women Artists I</td>
</tr>
<tr>
<td>F A/W St 310</td>
<td>Women Artists II</td>
</tr>
<tr>
<td>For L 110</td>
<td>Introduction to Foreign Film</td>
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<tr>
<td>For L 130</td>
<td>Introduction to Foreign Literature</td>
</tr>
<tr>
<td>Fren 110</td>
<td>French/Francophone Film</td>
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<tr>
<td>Fren 120</td>
<td>French Film</td>
</tr>
<tr>
<td>Fren 320</td>
<td>French/Francophone Culture</td>
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<tr>
<td>Fren 350</td>
<td>Introduction to French Literature</td>
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<tr>
<td>Ger 110</td>
<td>German Film</td>
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<td>Ger 120</td>
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<td>German Film</td>
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<tr>
<td>Hist 101</td>
<td>Classical and Christian Europe</td>
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<tr>
<td>Hist 102</td>
<td>Modern Europe</td>
</tr>
<tr>
<td>Hist 314/CES 304</td>
<td>[D] American Roots: Immigration, Migration, and Ethnic Identity</td>
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<tr>
<td>Hist 321</td>
<td>U.S. Popular Culture, 1800–1930</td>
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<td>Hist 322</td>
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<td>Hist/W St 337</td>
<td>Women in the Ancient World</td>
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<td>Hist 340</td>
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<td>Hist 341</td>
<td>Rome: Republic and Empire</td>
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<td>Hist 342</td>
<td>History of England to 1485</td>
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<tr>
<td>Hist 343</td>
<td>History of England Since 1485</td>
</tr>
<tr>
<td>Hist 355</td>
<td>History of European Popular Culture</td>
</tr>
<tr>
<td>Hist/W St 398</td>
<td>[D] History of Women in the American West</td>
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<tr>
<td>Hist/W St 399</td>
<td>[D] Lesbian and Gay History: Culture, Politics, and Social Change in the US</td>
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<td>Hum 101</td>
<td>Humanities in the Ancient World</td>
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<td>Hum 302</td>
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<td>Reason, Romanticism, and Revolution</td>
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<td>Humanities in the Modern World</td>
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<td>Hum 340</td>
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<td>I D 250</td>
<td>History of Interiors I</td>
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<td>Mus 153</td>
<td>Musical Style in Composition</td>
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<td>Mus 160</td>
<td>Survey of Music Literature</td>
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<td>Phil/W St 312</td>
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<td>Hum 350</td>
<td>Sacred Texts and Cultures of World Religions</td>
</tr>
<tr>
<td>Mus 265/CES 271</td>
<td>Native Music of North America</td>
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<tr>
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<tr>
<td>Phil/Asia 280</td>
<td>Philosophy and Religion of Islam</td>
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<td>Phil/Asia 314</td>
<td>Philosophies and Religions of India</td>
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<td>Latin American Film</td>
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<td>Span 121</td>
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<tr>
<td>Span 321</td>
<td>Latin American Culture</td>
</tr>
<tr>
<td>Theat 145</td>
<td>Contemporary World Theatre</td>
</tr>
</tbody>
</table>

**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>Code</th>
<th>Course Title</th>
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<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>
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<tr>
<td>Am St/Engl/Hist/W St 216</td>
<td>American Cultures</td>
</tr>
<tr>
<td>Anth/W St 214</td>
<td>Gender and Culture in America</td>
</tr>
<tr>
<td>Anth 327/CES 378</td>
<td>Contemporary Native Peoples of the Americas</td>
</tr>
</tbody>
</table>

42
The General Education Program

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. 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.

*[*] designates courses which meet General Education Requirements in either Arts and Humanities or Intercultural Studies.

#[*] designates courses which meet General Education Requirements in either Social Sciences or Intercultural Studies.
### The General Education Program

<table>
<thead>
<tr>
<th>Course Code</th>
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<td>Anth 301</td>
<td>[G] Arts and Media in Global Perspective</td>
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<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/W St 316</td>
<td>[K] Gender in Cross Cultural Perspective</td>
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<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>
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<tr>
<td>CES 101</td>
<td>Introduction to Comparative American Cultures</td>
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<tr>
<td>CES 151</td>
<td>[G] Introduction to Chicano Studies</td>
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<tr>
<td>CES 171</td>
<td>[G] Introduction to Native American Studies</td>
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<td>CES 211/Hist 201</td>
<td>[K] Introduction to Asian American History</td>
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<td>CES 227</td>
<td>Introduction to African Studies</td>
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<td>CES 240</td>
<td>Global Indigenous Issues</td>
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<tr>
<td>CES 233/Engl 311</td>
<td>[G] Asian Pacific/American Literature</td>
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<td>CES 325</td>
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<td>CES 331/Engl 321</td>
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<td>Chin/Asia/Japn 111</td>
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<td>Chin/Asia/Hum 120</td>
<td>[G] Traditional Chinese Culture</td>
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<td>Chin/Japn 131</td>
<td>[G] Masterpieces of Asian Literature</td>
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<td>Chin/Asia/Japn 321/W St 322</td>
<td>[G] Gender and Love in East Asia</td>
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<td>Com 321</td>
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<tr>
<td>Engl 222</td>
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<tr>
<td>Engl 316</td>
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<tr>
<td>F A 301</td>
<td>[G] Arts of Native North America</td>
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<tr>
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<td>Introduction to the World of Languages</td>
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<tr>
<td>For L 120</td>
<td>Introduction to Foreign Cultures</td>
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<tr>
<td>For L 220</td>
<td>[G] Global Theory/Regional Reality through Culture</td>
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<td>[G] Introduction to Francophone Literature</td>
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<tr>
<td>Hist 230</td>
<td>[K] Latin America, The Colonial Period</td>
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<tr>
<td>Hist 231</td>
<td>[K] Latin America, The National Period</td>
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<tr>
<td>Hist/Asia 270</td>
<td>[K] Introduction to South Asian Culture</td>
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<tr>
<td>Hist/Asia 271</td>
<td>[K] Southeast Asian History: Vietnam to Indonesia</td>
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<tr>
<td>Hist/Asia 272</td>
<td>Introduction to Middle Eastern History</td>
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<tr>
<td>Hist/Asia 273</td>
<td>Foundations of Islamic Civilization</td>
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<tr>
<td>Hist 274</td>
<td>[K] Introduction to African History</td>
</tr>
<tr>
<td>Hist/Asia 275</td>
<td>[K] Introduction to East Asian Culture</td>
</tr>
<tr>
<td>Hist 308/CES 375</td>
<td>[K] North American Indian History, Precontact to Present</td>
</tr>
<tr>
<td>Hist 331</td>
<td>[K] Cultural History in Latin America</td>
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<tr>
<td>Hist/W St 335</td>
<td>[K] Women in Latin American History</td>
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<td>Hist/Asia 370</td>
<td>Civilization of Classical India</td>
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<td>Hist/Asia 373</td>
<td>[G] Chinese Civilization</td>
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<td>[G] Japanese Civilization</td>
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<td>Hum 301</td>
<td>[G] Diversity Lecture Series</td>
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<tr>
<td>Hum 350</td>
<td>[G] Sacred Texts and Cultures of World Religions</td>
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<td>Japn/Asia/Chin/Hum 320</td>
<td>[G] Issues in East Asian Ethics</td>
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<td>Mus 265/CES 271</td>
<td>[G] Native Music of North America</td>
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<tr>
<td>Mus/W St 363</td>
<td>[G] Women and Music</td>
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<td>Phil/Asia 280</td>
<td>[G] Philosophy and Religion of Islam</td>
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<td>[G] Latin American Culture</td>
</tr>
<tr>
<td>Theat 145</td>
<td>[G] Contemporary World Theatre</td>
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</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]

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<td>Astr 150</td>
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</tr>
<tr>
<td>Biol 150</td>
<td>Evolution</td>
</tr>
<tr>
<td>Entom 150</td>
<td>Insects, Science, and World Cultures</td>
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<tr>
<td>Hort 150</td>
<td>Plants and Society</td>
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<tr>
<td>Phys 150</td>
<td>Physics and Your World</td>
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<tr>
<td>PL 150</td>
<td>Molds, Mildews, Mushrooms: The Fifth Kingdom</td>
</tr>
<tr>
<td>Sci 101</td>
<td>Origins in the Natural World</td>
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<tr>
<td>Sci 102</td>
<td>Dynamic Systems in the Natural World</td>
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#### [B] BIOLOGICAL SCIENCES (Tier II)

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<tr>
<td>Anth 260</td>
<td>(L) Introduction to Physical Anthropology</td>
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<tr>
<td>A S 205</td>
<td>Companion Animal Nutrition</td>
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<tr>
<td>Biol 101</td>
<td>Direction in Biological Sciences</td>
</tr>
<tr>
<td>Biol 102</td>
<td>(L) General Biology</td>
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<tr>
<td>Biol 105</td>
<td>(L) Biological Science Laboratory</td>
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<tr>
<td>Biol 106</td>
<td>(L) Introductory Biology: Organismal Biology</td>
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<tr>
<td>Biol 107</td>
<td>(L) Introductory Biology: Cell Biology and Genetics</td>
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<tr>
<td>Biol 120</td>
<td>(L) Introduction to Botany</td>
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<tr>
<td>Biol 130</td>
<td>Biology of the Oceans</td>
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<tr>
<td>Biol 135</td>
<td>Animal Natural History</td>
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<tr>
<td>Biol 140</td>
<td>Introduction to Nutritional Science</td>
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<tr>
<td>Biol 201</td>
<td>Contemporary Biology</td>
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<td>Biol 298</td>
<td>Marine Biology</td>
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<td>Biol 308</td>
<td>Principles of Conservation</td>
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<tr>
<td>Biol 330</td>
<td>(L) Stream Monitoring</td>
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<tr>
<td>Entom 101</td>
<td>Insects and People: A Perspective</td>
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<td>Entom 102</td>
<td>Entomology in Human Health</td>
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<tr>
<td>ES/RP 101</td>
<td>(L) Environment and Human Life</td>
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<td>MBioS 101</td>
<td>(L) Introductory Microbiology</td>
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<td>(L) Introductory Microbiology Laboratory</td>
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<td>MBioS 320</td>
<td>DNA and Society</td>
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<td>NATRS 300</td>
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<tr>
<td>Psych 265</td>
<td>Biopsychological Effects of Alcohol and Other Drugs</td>
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<td>Psych 372</td>
<td>Introduction to Physiological Psychology</td>
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<tr>
<td>Sci 220</td>
<td>(L) DNA Today</td>
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<tr>
<td>SoilS 201</td>
<td>Soil: A Living System</td>
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</table>
**TIER III COURSES [T] (3 hours)**

This upper-division requirement is designed to assist students to become lifelong, self-directed learners through a synthesis of learning culminating in a significant project. Tier III courses have as a general prerequisite 60 hours of course work; students should be aware that specific courses may carry additional prerequisites. Tier III courses may 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.

<table>
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<tr>
<td>AMT 417</td>
<td>[D] Social and Psychological Aspects of Dress</td>
</tr>
<tr>
<td>Anth 404</td>
<td>The Self in Culture</td>
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<tr>
<td>Anth 405</td>
<td>Medical Anthropology</td>
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<tr>
<td>Anth 417</td>
<td>Anthropology and World Problems</td>
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<tr>
<td>Anth 468</td>
<td>Sex, Evolution, and Human Nature</td>
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<td>Anth 469</td>
<td>Genes, Culture, and Human Diversity</td>
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<td>Asia/Hist 479</td>
<td>History of East Asian Economic Development Since 1945</td>
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<tr>
<td>CES 403</td>
<td>Cultural Issues in Psychology</td>
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<tr>
<td>CES 405/Engl 410</td>
<td>Cultural Criticism and Theory</td>
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<td>CES/W St 411</td>
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<tr>
<td>CES 426</td>
<td>Workers Across North America</td>
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<tr>
<td>CES/W St 435</td>
<td>[D] African American Women in US Society</td>
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<td>CES 440</td>
<td>[D] Social Justice and American Culture</td>
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<td>CES 444</td>
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<td>CES/W St 454</td>
<td>La Chicana in U.S. Society</td>
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<td>CES 475</td>
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<td>Cpt S 401</td>
<td>Computers and Society</td>
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<td>Cpm/J/W St 403</td>
<td>Violence Toward Women</td>
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<tr>
<td>CRB 431</td>
<td>[D] The Demographics of American Diversity</td>
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<tr>
<td>Econ$ 428</td>
<td>Global Capitalism Today: Perspectives and Issues</td>
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<td>Econ$ 430</td>
<td>Managing the Global Environment</td>
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<td>[D] Families in Poverty</td>
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<td>Workers Across North America</td>
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<td>Hist 433</td>
<td>European Expansion Overseas, 1400-1800</td>
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<td>Hist 436</td>
<td>Imperialism in the Modern World</td>
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<td>Hist 444</td>
<td>The Renaissance</td>
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<td>Hist 455</td>
<td>The Great War 1914 - 1920</td>
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<td>Hist/246</td>
<td>History of the Cold War, 1944-present</td>
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<td>Hist/Asia 473</td>
<td>The Middle East and the West</td>
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<td>History of East Asian Economic Development Since 1945</td>
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<td>Hist 483</td>
<td>Technology and Social Change to 1950</td>
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<td>Hist 491</td>
<td>History of World Trade</td>
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<td>Hist 492</td>
<td>Cultural Appetites: Food in World History</td>
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<td>Hist 494</td>
<td>Global Environmental History</td>
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<td>Hist 495</td>
<td>Space, Place, and Power in History: Historical Geography in Global Perspective</td>
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<td>The Costs of Free Speech</td>
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<td>The Politics of Natural Resource and Environmental Policy</td>
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<td>Soc 430</td>
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<td>W St 460</td>
<td>Gender, Race, and Nature in America</td>
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<td>W St/Soc 484</td>
<td>[D] Lesbian and Gay Studies</td>
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**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.

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<td>Astr 390</td>
<td>(L) The Night Sky</td>
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<td>Chem 101</td>
<td>(L) Introduction to Chemistry</td>
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<td>(L) Chemistry Related to Life Sciences</td>
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<td>(L) Principles of Chemistry I</td>
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<td>Chem 106</td>
<td>(L) Principles of Chemistry II</td>
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<td>Chem 116</td>
<td>(L) Chemical Principles Honors</td>
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<td>Chem 350</td>
<td>(L) Chemistry in Contemporary Society</td>
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<td>Geol 101</td>
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<tr>
<td>Geol 102</td>
<td>(L) Physical Geology</td>
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<tr>
<td>Geol 210</td>
<td>(L) Earth’s History and Evolution</td>
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<td>Geol 230</td>
<td>Introductory Oceanography</td>
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<td>Geol 322</td>
<td>Geology of the Pacific Northwest</td>
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<td>Geol 323</td>
<td>(L) Geology of the Pacific Northwest</td>
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<td>Geol 390</td>
<td>Living on the Edge: Global Climate Change and Earth History</td>
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<td>Phys 101</td>
<td>(L) General Physics</td>
</tr>
<tr>
<td>Phys 102</td>
<td>(L) General Physics</td>
</tr>
<tr>
<td>Phys/Astr 138</td>
<td>Planets and Planetary Systems</td>
</tr>
<tr>
<td>Phys 201</td>
<td>(L) Physics for Scientists and Engineers</td>
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<tr>
<td>Phys 202</td>
<td>(L) Physics for Scientists and Engineers</td>
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<tr>
<td>Phys 205</td>
<td>(L) Physics for Scientists and Engineers I - Honors</td>
</tr>
<tr>
<td>Phys 206</td>
<td>(L) Physics for Scientists and Engineers II - Honors</td>
</tr>
<tr>
<td>Phys 380</td>
<td>Physics and Society</td>
</tr>
<tr>
<td>Sci 230</td>
<td>Introduction to Ocean Science</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>Am St 471</td>
<td>Cultural Politics Since World War II</td>
</tr>
<tr>
<td>Am St/Engl 472</td>
<td>Ecological Issues and American Nature Writing</td>
</tr>
<tr>
<td>Am St/Engl 475</td>
<td>Digital Diversity</td>
</tr>
<tr>
<td>Am St 473</td>
<td>[D] Arts in American Cultures</td>
</tr>
<tr>
<td>Am St 475</td>
<td>[D] Digital Diversity</td>
</tr>
<tr>
<td>AMT 408</td>
<td>Visual Analysis and Aesthetics</td>
</tr>
<tr>
<td>Arch 428</td>
<td>Architecture and Culture in the Islamic World</td>
</tr>
<tr>
<td>Engl/W St 409</td>
<td>Women Writers in the American West</td>
</tr>
<tr>
<td>Engl 415</td>
<td>Traditions of Comedy and Tragedy</td>
</tr>
<tr>
<td>Engl 419</td>
<td>The Twentieth Century Novel</td>
</tr>
<tr>
<td>Engl/Am St 470</td>
<td>Literature and Culture of the American West</td>
</tr>
<tr>
<td>For L 410</td>
<td>Issues in Foreign Film and Literature</td>
</tr>
<tr>
<td>Fren 410</td>
<td>French Film in Translation</td>
</tr>
<tr>
<td>Fren 420</td>
<td>French Culture through Wine</td>
</tr>
<tr>
<td>Fren 430</td>
<td>Topics in French/ Francophone Literature</td>
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<tr>
<td>Hum 410</td>
<td>Love in the Arts</td>
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<tr>
<td>Hum 450</td>
<td>Representations of the Holocaust</td>
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<tr>
<td>Phil 413</td>
<td>Mind of God and the Book of Nature: Science and Religion</td>
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<tr>
<td>Phil 415</td>
<td>The Experience of Illness in Society: Moral Problems in Health Care</td>
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<tr>
<td>Phil/W St 425</td>
<td>Philosophy and Feminism</td>
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<tr>
<td>Phil 431</td>
<td>Aesthetics and Philosophy of Art</td>
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<tr>
<td>Phil 435</td>
<td>East/West Philosophy of Architecture</td>
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<tr>
<td>Rus 410</td>
<td>Russian Film</td>
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<td>Rus 430</td>
<td>St. Petersburg</td>
</tr>
<tr>
<td>Span 420</td>
<td>Cultural Topics</td>
</tr>
</tbody>
</table>
Departments, Requirements, and Courses

Department of Aerospace Studies

www.afrotc.wsu.edu
Kruegel 417
509-335-5598

Colonel G. Cain; Lt Colonel T. Unzicker; Captain P. Brewer; Captain R. Partain.

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.

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

Aero

101 The Foundations of USAF I 1 Prereq c// in Aero 103 required. Introduces students to the Air Force and AFROTC.

102 The Foundations of USAF II 1 Prereq c// in Aero 103 required. Introduces students to the Air Force and AFROTC.

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. S, F grading.

201 The Evolution of USAF Air and Space Power I 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.

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.

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. S, F grading.

291 Four-Week Field Training Course 2 (0-6) Prereq 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.

292 Six-Week Field Training Course 6 (0-18) Prereq junior standing; by interview only. Intensive study of military education, experience in leadership and management at an active Air Force installation. S, F grading.

299 Directed Studies V 1-4 May be repeated for credit. By interview only. Cooperative course taught jointly by WSU and UI (AERO 299). S, F grading.

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. S, F grading.

391 Private Pilot Ground School 2 All aspects of preparation for the FAA private pilot written test. Cooperative course taught by UI, open to WSU students (AERO 391).

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, open to WSU students (AERO 392).

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. S, F grading.

485 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

499 Special Problems V 1 (0-3) to 4 (0-12) 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. Students can choose to continue and earn 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.

*Contact Dr. Margret H. Young at youngm@email.wsu.edu.

Minors

Aging

The minor in aging requires a minimum of 18 hours of credit including H D 203 or 305; M BioS 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 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

AGING

Aging

275 Special Topics in Aging: Study Abroad
V 1-6 May be repeated for credit; cumulative maximum 6 hours. S, F grading.

363 Psychology of Aging
3 Prereq Psych 105 or 198. Same as Psych 363.

486 Special Topics in Aging: Study Abroad
V 1-15 May be repeated for credit; cumulative maximum 15 hours. Prereq 6 hours in Anth, H D, Psych, or Soc. S, F grading.

Agricultural and Food Systems

afs.wsu.edu
Hulbert Hall 423
509-335-8406


Academic Program Oversight Coordinator: Amy Sharp (alsharp@wsu.edu).

Feed the world. Power the planet. Save the environment. It’s a tall order by any measure, but especially when you consider that experts predict that by 2035, the world population will grow to more than 8 billion human beings. At the center of the issue is the agricultural enterprise of the 21st Century. WSU’s Agricultural and Food Systems Degree Program focuses on vital aspects of agricultural and food systems ranging from plant and animal production to marketing and education. This innovative program provides students with what they need to build or work in a modern food system that is productive, competitive and sustainable.

Delivered collaboratively by departments within the College of Agricultural, Human, and Natural Resource Sciences, the AFS program provides foundational education in a wide array of disciplines, including crop and soil sciences, horticulture, entomology, plant pathology, and economics. Students can choose among five Bachelor of Science degree majors: Agricultural Education, Agricultural Technology and Production Management, Agricultural and Food Business Economics, Agriculture and Food Security, and Organic Agriculture. The college offers a minor in Agricultural Systems, which is specifically designed to complement a major in Communications, for students interested in careers in the communications sector of the agricultural industry. The college also offers an interdisciplinary Masters of Science in Agriculture degree, an Undergraduate Certificate in Organic Agriculture, and a Graduate Certificate in Sustainable Agriculture.

Bachelor of Science in Agricultural and Food Systems (Pullman campus)

Systems not silos. The AFS degree program emphasizes the highly integrated nature of the science disciplines involved in growing food. All students take a core set of courses designed to provide them with a broad interdisciplinary background as well as the decision making skills they’ll need to succeed and excel in the workplace.

In addition to WSU’s Six Learning Goals of the Baccalaureate, graduates with a major in AFS will be able to:
• Identify, describe, and solve problems within complex scientific systems associated with agricultural and food production.
• Identify and navigate through the cultural, political, ethical, and human issues within agricultural and food systems.
• Apply the technological skills needed to work within conventional and/or organic food production systems, emphasizing food production, technology, communication, and/or education.
• Describe and navigate through the domestic and international aspects of agricultural and food systems in relation to government policies.
• Apply the analysis and management skills needed to work in agribusiness.

• Use critical thinking and problem solving skills to identify and resolve issues.
• Demonstrate strong communication, leadership, and interpersonal skills.

The hands-on possibilities with the AFS degree are numerous. Students are encouraged to participate in undergraduate research projects, work as part-time employees with research and extension personnel, and/or participate in professional internships to put their classroom training to work. Student clubs also provide a variety of ways to interact with peers, faculty, and staff within the college, yet another way to enrich the educational experience.

Scholarships for AFS majors are available on a competitive basis, and are awarded based on ability, need, and interest in a career path in associated professions. In order to certify in an AFS major, a student must have a minimum of 24 credits with a minimum cumulative GPA of 2.0. For complete information about all majors within the AFS degree programs, please see the AFS webpage at: afs.wsu.edu.

Transfer Students

Students planning to transfer into the AFS program should take courses that meet the university’s general education requirements (GERs) and are encouraged to consult with an advisor within the AFS program for further guidance. Transfer articulation agreements have been developed with several Washington community colleges degree programs.

Master of Science in Agriculture (Pullman and Distance Delivery)

This advanced degree program focuses on the agricultural professional, practitioner, and educator to meet the growing need for prepared individuals to apply new and emerging technologies and science to the advancement of agriculture. This degree offers professionals already working in the field the opportunity to continue their education while they continue employment either inside or outside of the Pullman area. Both thesis and non-thesis options are available. Access complete program description on-line at: http://www.msag.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.

AGRICULTURAL AND FOOD BUSINESS ECONOMICS

(120 HOURS)

The Agricultural and Food Business Economics major gives students what they need to succeed in the food and agricultural business world – knowledge of business and economics practices as well as a deep understanding of animal, plant, and food systems. Graduates in this major are highly qualified to fill positions ranging from market researcher to product analyst to food broker in a variety of venues, including private industry, commercial farms and ranches, government agencies, production agriculture, and universities.
### First Year

**First Term**
- A S 101
- AFS 101
- EconS 101 [S] or 102 [S] (GER)
- Hort 102
- Math 201

**Second Term**
- EconS 101 [S] or 102 [S] (GER)
- Engl 101 [W] (GER)
- GenEd 110 [A] or 111 [A] (GER)
- H I D 205 [C] or ComSt 102 [C] (GER)
- Math 202 [N] (GER)

**Third Year**
- Complete Writing Portfolio

**Fourth Year**
- Complete West B Exam

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### Second Year

**First Term**
- Biol 120 [B] (GER)
- Chem 302 [P] (GER)
- GenEd 110 [A] or 111 [A] (GER)
- Stat 212 [N] (GER) or MgtOp 215

**Second Term**
- Acctg 230
- AFS 201
- Biol 106 [B] (GER)
- Chem 102 [P] (GER)

**Third Year**
- Complete Writing Portfolio

**Fourth Year**
- Complete Writing Portfolio

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### Third Year

**First Term**
- CropS 360 [I] (GER)
- CRS 336 [B] (GER)
- EconS 301
- EconS 350[^1]
- EconS 351

**Second Term**
- Arts & Humanities [H,G] (GER)[^3]
- EconS 311 [M]
- Fin 325 or EconS 335
- SoilS 201 [B] (GER)

**Fourth Year**
- EconS 452 [M]
- Tier III [T] (GER)[^3]
- Electives

**Second Term**
- AFS 401
- EconS 450 [M]
- EconS 451 (AFS Core Systems Elective)
- Electives

**Third Year**
- First Term
  - A S 101
  - AFS 101
  - Chem 101 [P] (GER)
  - CropS 102 or Hort 102
  - Engl 101 [W] (GER)

- Second Term
  - GenEd 110 [A] or 111 [A] (GER)
  - Chem 102 [P] (GER)
  - Psych 105 [S] (GER)

**Fourth Year**
- First Term
  - Biol 120 [B] (GER)
  - EconS 101 [S] (GER)
  - Engl 201 [W] (GER)
  - GenEd 110 [A] or 111 [A] (GER)
  - T & L 301

- Second Term
  - AgEd 440 [M]
  - AgEd 450
  - GenEd 110 [A] or 111 [A] (GER)
  - T & L 407

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### Fourth Year

**First Term**
- First Term
- Second Term
- Second Term
- Fourth Year

**Fourth Year**
- First Term
- Second Term

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### Agricultural and Food Systems

**Agricultural Education (126 Hours)**

Combining the best of both agriculture and teaching, the Agricultural Education major prepares students to educate the next generation of agricultural leaders and consumers. Highly sought after by employers, they teach high school and middle school agricultural science classes, as well as serve as FFA advisors, adult education instructors, community outreach coordinators, university extension agents, etc.

This major requires students to complete the AFS core courses and agricultural education required courses, as well as a series of teaching and learning courses to meet initial teacher certification requirements. Students also spend a semester student teaching in an agricultural education program in a Washington high school.

Students electing a major in Agricultural Education 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).

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### Agricultural and Food Systems

**Agricultural Technology and Production Management (121 Hours)**

Students in this hands-on major gain a science-based overview of agriculture and food systems, with an emphasis on the practical application of technology to agricultural production systems. The program combines students’ inherent creativity and interest in physical and biological sciences, technology, mathematics, business, and related subjects with their desire to develop innovative solutions to a variety of agricultural problems.

Areas of application include precision agricultural operations and services, management of agricultural businesses, production operations, sales, and promotional work in domestic and international agricultural communities. Graduates are prepared to own, operate, and manage their own enterprises or to provide services for private or governmental entities.

**First Year**
- First Term
- Second Term

**Second Year**
- First Term
- Second Term

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### Agricultural Education (126 Hours)

Combining the best of both agriculture and teaching, the Agricultural Education major...
Students in this major are the protectors of the world's plant-based food supply. The Agriculture and Food Security major prepares students to manage plant pests and diseases from a holistic perspective.

Students learn to understand the complexity of relationships within agricultural ecosystems, how external factors influence these systems, and how to effectively manage pests and diseases without incurring undue risks to human or environmental health. Course offerings begin with a strong scientific base in biology and chemistry, and expand to focus on crop science, soil science, integrated pest management, and plant pathology.

The major is an exciting blend of classroom instruction and field experience that is tailored to the eventual employment goals of the student.

Graduates who can evaluate and diagnose pest and plant disease problems and recommend economically and ecologically sound ways to correct them are in great demand. Excellent employment opportunities exist with state, federal, and international agricultural, environmental, and regulatory agencies, agrichemical companies, agricultural and environmental consulting firms, food processing, forest product, and vegetable and seed companies, and a wide range of other agribusiness enterprises.

## ORGANIC AGRICULTURE SYSTEMS (120 HOURS)

Significantly different than conventional agriculture, organic food production is one of the fastest growing segments of agriculture, with retail sales increasing by 20 percent annually since 1991. In many ways, Washington State has been a leader in this burgeoning new industry. This revolutionary new major is the first of its kind to be offered in the United States. Students in this major take a diverse array of courses in the natural, environmental, economic and social sciences, as well as a number of courses focused on organic production practices.

Students wanting a hands-on degree experience thrive in the organic major. WSU has over a four-acre certified organic teaching farm where students learn to produce certified organic vegetables, fruit, herbs, and flowers that they distribute through local food banks, on-campus food service, a 100-member CSA (community supported agriculture), and a local farmers' market. Students have the opportunity to tailor their program of study to specific areas of emphasis, such as organic animal and dairy production, economics and marketing, crop production, food science, pest management, soil management, etc. in consultation with their advisor.

The Organic Agriculture Program at WSU prepares students to work on or develop their own organic farm. It also prepares students for employment opportunities with nonprofit organizations and government agencies involved in environmental and food safety, as well as private-sector food processing, marketing, organic certification, and product development industries.

## AGRICULTURE AND FOOD SECURITY (120 HOURS)

Students in this major are the protectors of the world's plant-based food supply. The Agriculture and Food Security major prepares students to manage plant pests and diseases from a holistic perspective. Students learn to understand the complexity of relationships within agricultural ecosystems, how external factors influence these systems, and how to effectively manage pests and diseases without incurring undue risks to human or environmental health. Course offerings begin with a strong scientific base in biology and chemistry, and expand to focus on crop science, soil science, integrated pest management, and plant pathology.

The major is an exciting blend of classroom instruction and field experience that is tailored to the eventual employment goals of the student.

Graduates who can evaluate and diagnose pest and plant disease problems and recommend economically and ecologically sound ways to correct them are in great demand. Excellent employment opportunities exist with state, federal, and international agricultural, environmental, and regulatory agencies, agrichemical companies, agricultural and environmental consulting firms, food processing, forest product, and vegetable and seed companies, and a wide range of other agribusiness enterprises.

## Third Year

### First Term

- **A S 101** 3
- **AFS 101** 3
- **Chem 101 [P] or 105 [P] (GER)** 4
- **GenEd 110 [A] or 111 [A] (GER)** 3
- **Hort 102** 3

### Second Term

- **Chem 102 [P] or 106 [P] (GER)** 4
- **Engl 101 [W] (GER)** 3
- **GenEd 110 [A] or 111 [A] (GER)** 3
- **Hort 202** 4

## Fourth Year

### First Term

- **A S 101** 3
- **AFS 101** 3
- **Chem 101 [P] or 105 [P] (GER)** 4
- **GenEd 110 [A] or 111 [A] (GER)** 3
- **Hort 102** 3

### Second Term

- **Chem 102 [P] or 106 [P] (GER)** 4
- **Engl 101 [W] (GER)** 3
- **GenEd 110 [A] or 111 [A] (GER)** 3
- **Hort 202** 4

## Fifth Year

### First Term

- **A S 101** 3
- **AFS 101** 3
- **Chem 101 [P] or 105 [P] (GER)** 4
- **GenEd 110 [A] or 111 [A] (GER)** 3
- **Hort 102** 3

### Second Term

- **Chem 102 [P] or 106 [P] (GER)** 4
- **Engl 101 [W] (GER)** 3
- **GenEd 110 [A] or 111 [A] (GER)** 3
- **Hort 202** 4

## Sixth Year

### First Term

- **A S 101** 3
- **AFS 101** 3
- **Chem 101 [P] or 105 [P] (GER)** 4
- **GenEd 110 [A] or 111 [A] (GER)** 3
- **Hort 102** 3

### Second Term

- **Chem 102 [P] or 106 [P] (GER)** 4
- **Engl 101 [W] (GER)** 3
- **GenEd 110 [A] or 111 [A] (GER)** 3
- **Hort 202** 4

## Seventh Year

### First Term

- **A S 101** 3
- **AFS 101** 3
- **Chem 101 [P] or 105 [P] (GER)** 4
- **GenEd 110 [A] or 111 [A] (GER)** 3
- **Hort 102** 3

### Second Term

- **Chem 102 [P] or 106 [P] (GER)** 4
- **Engl 101 [W] (GER)** 3
- **GenEd 110 [A] or 111 [A] (GER)** 3
- **Hort 202** 4

## Eighth Year

### First Term

- **A S 101** 3
- **AFS 101** 3
- **Chem 101 [P] or 105 [P] (GER)** 4
- **GenEd 110 [A] or 111 [A] (GER)** 3
- **Hort 102** 3

### Second Term

- **Chem 102 [P] or 106 [P] (GER)** 4
- **Engl 101 [W] (GER)** 3
- **GenEd 110 [A] or 111 [A] (GER)** 3
- **Hort 202** 4

## Ninth Year

### First Term

- **A S 101** 3
- **AFS 101** 3
- **Chem 101 [P] or 105 [P] (GER)** 4
- **GenEd 110 [A] or 111 [A] (GER)** 3
- **Hort 102** 3

### Second Term

- **Chem 102 [P] or 106 [P] (GER)** 4
- **Engl 101 [W] (GER)** 3
- **GenEd 110 [A] or 111 [A] (GER)** 3
- **Hort 202** 4

## Tenth Year

### First Term

- **A S 101** 3
- **AFS 101** 3
- **Chem 101 [P] or 105 [P] (GER)** 4
- **GenEd 110 [A] or 111 [A] (GER)** 3
- **Hort 102** 3

### Second Term

- **Chem 102 [P] or 106 [P] (GER)** 4
- **Engl 101 [W] (GER)** 3
- **GenEd 110 [A] or 111 [A] (GER)** 3
- **Hort 202** 4
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. The certificate is ideal for professionals working in agriculture or related fields who require in-depth knowledge of organic systems, those wanting to pursue a career in organic agriculture, anyone interested in beginning a community-supported agriculture (CSA) enterprise, home gardeners, as well as current WSU students in other majors at WSU with an interest in organic agriculture. Students develop knowledge and skills that are applicable to industries and agencies involved in the food chain—from production, processing, and delivery to policy, regulation, and education.

The 18-credit certificate program is designed with 3 core courses (9 credit hours) required for all students, 3 credit hours of “experiential learning”, plus a minimum of 6 additional credit hours (electives) selected from a range of courses. All courses already exist as permanent courses, and the certificate can be fulfilled through on-line delivery or in-class participation on the Pullman campus.

Requirements:
- Core: 9 credit hours from SoilS 101, SoilS 201, and SoilS 302 (cross-listed as AFS 101, SoilS 201, and SoilS 302). The prerequisites of the courses needed for the degree and 9 credits towards a Ph.D. degree may only accumulate 6 credits toward a master's degree.
- Electives: 6 credit hours from SoilS 480 (for on-campus students) or SoilS 498 (for online students); Electives: 6 credit hours from AFS 445, SoilS 414, and SoilS 415. Spring semester.

### 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**

**AFS**

101 Introduction to Agricultural and Food Systems 3 Prereq A S 101; Hort 102; or by permission of instructor. Introduction to the disciplines and integration of the fields of agriculture, food production, manufacturing and distribution to define and solve real-world problems.

201 Systems Skills Development for Agricultural & Food Systems 3 (2-2) Prereq AFS 101; EconS 101. Development of tools and skills in building, evaluating and applying model systems in agricultural production, food manufacturing and distribution in rural society and agriculture as a whole; focus on the types of systems, construction and analysis.


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.

445 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. Credit not granted for both AFS 445 and 545. Cooperative course taught jointly by WSU and UI (AG 445).

501 Current Research in Organic and Sustainable Agriculture 3 Multidisciplinary framework to assess the sustainability of a range of farming and food systems.

545 Field Analysis of Sustainable Food Systems 3 Graduate-level counterpart of AFS 445; additional requirements. Credit not granted for both AFS 445 and 545. Cooperative course taught jointly by WSU and UI (AG 545).

**AGRICULTURAL EDUCATION**

Ag Ed

342 Methods of Teaching Agriculture 3 Prereq T & L 203 and admitted to College of Education. Methods and strategies for teaching agricultural science.

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.
450 Planning, Curriculum, and Techniques in AgEd 3 Prereq admission in College of Education, TSL 301, TSL 317, or instructor approval. Focus on career and technical education program planning, curriculum development, and instructional techniques for agricultural education programs.

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 3 Historical, philosophical, social, political and economic factors that influence education in vocational environments.

511 Seminar in Career and Technical Education V 1-2 Prereq graduate standing. Seminar addressing new and emerging legislation and educational programs in vocational education.

GENERAL AGRICULTURE

Agri

501 Agriculture Master's Practicum V 2-3 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 Contemporary Issues in Agricultural Technology and Policy 3 Contemporary issues in agricultural technology and policy implications.

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 Research 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 V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

AGRICULTURAL TECHNOLOGY AND MANAGEMENT

AgTM

201 Metal Fabrication 3 (1-6) Theory, applications, and practices of welding, machining, and associated techniques in fabricating with metals. Cooperative course taught by WSU, open to UI students (AGMEC 201).

210 Small Engine Maintenance and Repair 2 (1-3) Theories of operation, maintenance and repair of two- and four-stroke engines.

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).

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.

436 Agricultural Technology Design 2 Prereq junior standing, AgTM 305, 405, or permission of instructor; c/l 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 granted for both AgTM 436 and 536.

444 Teaching Practicum 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.

481 Independent Research V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq instructor approval.

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 granted for both AgTM 436 and 536.

Program in American Studies

libarts.wsu.edu/amерст
Wilson-Short 111
509-335-2605

Associate Professor and Interim Director, R. Ong; Professors, M. Bloodsworth-Lugo, R. King, N. Sturgeon; Associate Professors, K. Christen, L. Guerrero, L. Zuñiga. Affiliated Faculty, P. Ericsson, P. Groves Price, W. Johnson, T. Lewis, L. Mercier, P. Narayanan, W. Olson, T.V. Reed, C. Siegel.

The American Studies Program offers the 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 offering a rich, rigorous approach combining the best intellectual insights from literature, historical studies, women's studies, ethnic studies, the fine arts, global indigenous...
studies, environmental studies, and the social sciences. The program brings together faculty and students from a variety of disciplines to compare knowledge and gain perspectives on the United States.

The graduate program provides students with the intellectual history of American Studies as an interdisciplinary field. Students will be able to build a complex understanding of U.S. culture and its cultural practices by combining knowledge from a set of core courses in conjunction with electives and an area of specialization.

The American Studies Program of Washington State University was founded in 1962, and is a recognized leader in this field in the Northwest.

The American studies M.A. and Ph.D. degrees offer interdisciplinary approaches to the study of the United States as a multiethnic, multiracial, and multicultural society, embedded in transnational forces. The program’s core graduate faculty come from Comparative Ethnic Studies and Women’s Studies. Students have also worked with affiliated faculty in Anthropology, Communication, Digital Technology and Culture, Education, English, Fine Arts, History, Philosophy, Political Science, and Sociology. In addition to the American studies curriculum, students can take courses from other departments across the campus. 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, as well as the critical study of colonialism and empire, critical analysis of popular culture and sport, global indigenous studies, social movements and labor history, social action research, and critical cyber-culture studies.

Graduate Program

The American Studies Program of Washington State University 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, as well as the critical study of colonialism and empire, critical analysis of popular culture and sport, global indigenous studies, social movements and labor history, social action research, and critical cyber-culture 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 archive work, community activism, and traditional or electronic publishing, among other careers.

Positions Held by Recent Graduates

University and college teaching positions; NGOs; community organizing.

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 Rose Smetana, Washington State University, PO Box 644010, Pullman, WA 99164-4010, 509-335-1560, rsmetana@wsu.edu.

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

Am St

216 [S,D] American Cultures 3 Introduction to the interdisciplinary study of American cultures and the field of American studies.

470 [T] Literature and Culture of the American West 3 May be repeated for credit; cumulative maximum 6 hours. 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.

505 Pro Seminar in American Cultural Studies 3 Prereq graduate standing. Critical theoretical engagement within an interdisciplinary field; emphasis on professionalism.

506 Frameworks in American Cultural Studies 3 Prereq graduate standing. Critical framework for intellectual, theoretical, and political genealogies within American Studies.

507 Contemporary Practices in American Cultural Studies 3 Prereq graduate standing. Overview of contemporary practices in American cultural studies; important concepts and major insights within the field.

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 subaltern 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.

526 (503) Contemporary Theories of Race and Ethnicity 3 Prereq graduate standing. Major theoretical readings and key recent texts in the US and transnational ethnic studies scholarship.

527 Contemporary Feminist Theories and Practices 3 Prereq graduate standing. Major theoretical readings and key recent texts in the US and transnational feminist scholarship.

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 May be repeated for credit; cumulative maximum 9 hours. American Studies Summer Institute.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Department of Animal Sciences

www.anosci.wsu.edu
Clark 116
509-335-5523
and teamwork skills with application to diverse career paths.

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 science 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. The department offers experiential learning opportunities in dairy, beef cattle and swine that allow students to practice decision making and management skills. 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 science, mathematics, and general education courses 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.

ANIMAL MANAGEMENT DEGREE PROGRAM (120 HOURS)

At least 40 of the total hours required for the bachelor's degree in this program must be in 300-400-level courses.

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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 interest 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 after 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. 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. Most 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.

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<td>Complete Writing Portfolio</td>
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### Fourth Year

<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
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<tbody>
<tr>
<td>First Term</td>
<td>A S 314, 345, or 360</td>
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<tr>
<td></td>
<td>A S 350</td>
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<td></td>
<td>A S 351</td>
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<tr>
<td></td>
<td>Engl 301 [W] or 402 [W] (GER)</td>
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<td></td>
<td>Intercultural Studies [I,G,K] (GER)</td>
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### 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**

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>A S</td>
<td>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).</td>
</tr>
<tr>
<td>172</td>
<td>Dairy Cattle Management Laboratory 1 (0-3) Management practices associated with a dairy enterprise. Cooperative course taught by UI, open to WSU students (AVS 172), S, F grading.</td>
</tr>
<tr>
<td>174</td>
<td>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.</td>
</tr>
</tbody>
</table>
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.

205 [B] Companion Animal Nutrition 3 Information on nutrient use by the animal body and factors governing companion animal nutrition requirement including basic and practical aspects.

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 Beef Feedlot Systems 2 (1-3) Overview of feeding management, feed milling and batch, animal health, and economics of the commercial cattle feeding business. One 1-day field trip. Cooperative course taught by UI, open to WSU students (AVS 274).

280 Animal Science and Society: Current Topics 1 (0-2) A discussion of the products, science, and management of animal agriculture and how they relate to, and impact, society.

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 285).

313 Feeds and Feeding 4 (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 313).

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 314).

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 (ANSC 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 345).

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 346).

350 Physiology of Reproduction 3 Prereq Biol 106; Biol 107; Chem 102 or 106. Anatomical and physiological control of the reproductive system; hormones of reproduction; production of gametes; artificial insemination; fertilization; prenatal development; fertility and infertility. Cooperative course taught jointly by WSU and UI (AVS 350).

351 Physiology of Reproductive 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.


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.

398 Cooperative Education Externship V 2 (0-6) to 8 (0-24) May be repeated for credit; cumulative maximum 8 hours. Cooperative education externship in livestock production or related field. S, F grading.

399 Practicum V 1 (0-3) to 8 (0-24) May be repeated for credit; cumulative maximum 12 hours. Directed internship in livestock production and related fields conducted at WSU centers on or off campus. S, F grading.

408 [M] Ruminant Nutrition 3 Prereq A S 313. Metabolism of ruminant animals.

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 [M] Endocrine Physiology 3 Prereq Biol 106; Biol 107; MBioS 303. Anatomy, physiology, and biochemistry of endocrine systems and hormone action; emphasis on comparative, veterinary, and biomedical models. Credit not granted for both AS 451 and 551. 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 454).

466 Horse Science and Management 3 Prereq A S 313; A S 330; A S 350. Principles of managing, feeding, and breeding horses. Course divided into three subject matter sections: Management, Nutrition, Reproduction and Health. Cooperative course taught by UI, open to WSU students (AVS 466).

485 [M] Perspectives in Biotechnology 3 Prereq MBioS 301 or A S 330. Theory and application of biotechnology in agriculture, industry, and medicine; methodological, environmental, social, and economic concerns. Credit not granted for both AS 488 and 588. Cooperative course taught by WSU, open to UI students (AVS 485).

499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

500 Seminar in Animal Sciences 1 May be repeated for credit. Current developments in animal sciences.

504 Special Topics V 1-4 May be repeated for credit; cumulative maximum 12 hours. Cooperative course taught by UI, open to WSU students (AVS 504).

507 Advanced Nutrient Metabolism 3 Prereq FSHN course; MBioS 303. Advanced topics in metabolic regulation of carbohydrate, fat and amino acid use by animals. Cooperative course taught by WSU, open to UI students (ANSC 512).
510 Digestion and Nutrient Utilization in Animals 3 (2-3) 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.

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 516).

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 May be repeated for credit; cumulative maximum 4 hours. Prereq graduate standing. Systems of selection and mating for genetic improvement in farm animals.

551 Endocrine Physiology 3 Graduate-level counterpart of AS 451; additional requirements. Credit not granted for both AS 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.

582 Seminar in Reproductive Biology 1 Prereq graduate standing. Current developments in reproductive biology. Cooperative course taught by WSU, open to UI students (BIOL 551). S, F grading.

588 Perspectives in Biotechnology 3 Prereq MBioS 301. Graduate-level counterpart of AS 488; additional requirements.

598 Advanced Topics in Animal Sciences V 1-2 May be repeated for credit. Recent research in various disciplines of animal sciences. Cooperative course taught by WSU, open to UI students (AVS 596).

700 Master's Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Department of Anthropology
libarts.wsu.edu/anthro/
College Hall 150
509-335-3441


The curriculum includes courses in the four major subfields of anthropology: archaeology, cultural/social anthropology, linguistic anthropology, and physical/biological anthropology. These courses familiarize students with current issues in human evolution, linguistics, the prehistoric development of culture, and cultural theory. Undergraduate majors are required to gain a background in all four of these major subfields. Graduate students may specialize in archaeology, cultural anthropology, or evolutionary anthropology. The program in archaeology emphasizes the prehistory of western North America as well as ecological archaeology, past environments, quantitative methods, modeling and simulation, and lithic analysis, and includes courses taught by faculty with specialties in each of these areas. The department also conducts summer archaeological field schools in the Pacific Northwest and the Southwest. The program in cultural anthropology emphasizes globalization, historical ethnography, psychological anthropology, medical anthropology, gender and culture, biocultural perspectives, and environmental anthropology. The environmental anthropology emphasis is part of the Peace Corps Master’s International Program. Faculty research is based in North and South America, Polynesia, Sub-Saharan Africa, and South Asia. The program in evolutionary anthropology emphasizes evolutionary psychology, behavioral ecology, evolutionary cultural anthropology, evolutionary archaeology and paleoanthropology. Evolutionary faculty have research interests that span several continents including the Americas, Europe and Africa. The department also emphasizes research and training in Psychological/Medical Anthropology and Ethnobiology.

Departmental offices and laboratories are located in College Hall near the center of campus. Physical facilities include special laboratories for physical anthropology, lithic analysis, paleoecology, geoarchaeology, and zooarchaeology, as well as research laboratories for faculty and advanced students. The Museum of Anthropology, with permanent and temporary exhibits, and ethnographic and archaeological research collections, is also housed in College Hall.

The department offers courses of study leading to the degrees of Bachelor of Arts in Anthropology, Master of Arts in Anthropology, and Doctor of Philosophy (Anthropology). Positions open to anthropologists include those in teaching, research, museum work, state and federal agencies, private consulting firms, and international business. In addition, anthropology provides a strong general foundation for a pre-professional education.

We expect that our graduating students will have:
1. Familiarity with the basic principles and findings of ethnology, archaeology, biological 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 DEGREE PROGRAM (120 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 463, 465, 466, or 468; d) Anth 300, 330, 331, 334, 336, 370, 430, or 436.

First Year

First Term

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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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<tr>
<td>Foreign Language, if necessary, or Elective</td>
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<td>GenEd 111 [A] (GER)</td>
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Second Term

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<td>Math Proficiency [N] (GER)</td>
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<tr>
<td>Physical Sciences [P] (GER)</td>
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<td>Social Sciences [S,K] (GER)</td>
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Second Year

First Term

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<td>Math Proficiency [N] (GER)</td>
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Second Term

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<td>Cultural Anth Elective</td>
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57
Third Year

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<tr>
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<td>Archaeology Anth Elective</td>
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<tr>
<th>Second Term</th>
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<th>Description</th>
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</table>
| Anth Electives | 6 | Consider study abroad or summer field school 300-400-level Electives

Fourth Year

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<td>Anth 340 [M], 390 [M], 401 [M], 403 [M], 405 [M], or 430 [M]</td>
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<tr>
<td>Linguistic Anth Elective</td>
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<td>300-400-level Electives</td>
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<tr>
<td>Anth 490 [M]</td>
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<td>Tier III Course [T] (GER)</td>
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<td>300-400-level Electives</td>
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</table>

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**

**Anth**


130 [I] Great Discoveries in Archaeology | 3 | Impact of great archaeological discoveries and the work of archaeologists on our sense of the past.

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.

260 [B] Introduction to Physical Anthropology | 3-3 | Evidence for human evolution; processes of racial differentiation; techniques of physical anthropology.

275 Special Topics: Study Abroad | 1-15 | May be repeated for credit; cumulative maximum 100 hours, F grading.

300 Field Methods | V 2 (0-6) to 8 (0-24) | 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.

309 [K] Cultural Ecology | 3 | Sophomore standing; rec Anth 101 or 203. Major findings of ecological anthropology relating to problems of population, resources, and environment in small-scale cultures.

312 [S,D] Indigenous Women in Traditional and Contemporary Societies | 3 | Prereq one of Anth 101, 214, CES 101, 171, or W St 200. Same as CES 372.

316 [K] Gender in Cross Cultural Perspective | 3 | Prereq Anth 101, Psych 105, Soc 101, or W St 200; sophomore standing. Cross-cultural examination of the status and roles of women and men, sexuality and marriage, and folk concepts of sexual anatomy in traditional cultures in Western science; concepts of nature and culture are explored through a variety of perspectives.

317 [I] Global Feminisms | 3 | Same as W St 332.


327 [S,D] Contemporary Native Peoples of the Americas | 3 | Prereq Anth 101 or CES 171. Contemporary cultures of Native American communities emphasizing North America.

330 [S] Origins of Culture and Civilization | 3 | Prereq 3 hours Anth. Prehistoric roots of culture from the beginnings of humankind to the rise of the first civilizations in Africa and Eurasia.

331 [K] America Before Columbus | 3 | Prereq Anth 101 or GenEd 110. Cultures and environments of North/Middle America from the arrival of the earliest hunter-gatherers to the complex Mayan and Aztec civilizations.

334 [S,D] Time and Culture in the Northwest | 3 | Prereq Anth 101 or permission of instructor. The archaeologically reconstructed environmental and cultural past of the Northwest including contemporary scientific and social approaches and issues.


340 [K,M] Maya, Aztec and Inca Civilizations | 3 | Prereq Anth 101, 330, or 336. Examination of the great prehistoric civilizations of Mesoamerica and South America.

350 [S] Speech, Thought and Culture | 3 | The role of language in social situations and as a reflection of cultural differences.

370 Past Environments and Culture | 3 | People and their environments from the Ice Age to modern time; archaeological, ecological, and biological data.

380 Introduction to Osteology | 3 | Introduction to the field of osteology including molecular analysis, paleopathology, taphonomy and forensic analysis.


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.

399 Archaeological Field School | V 2 (0-6) to 8 (0-24) | Prereq permission of instructor by application. Training in methods of archaeological data recovery and analysis.
402 Cross-cultural Gender and Kinship 3

404 [T] The Self in Culture 3 Prereq 100, 200, and 300-level (one of each) in Anth, Hist, Psych, Literature, or Soc; completion of one Tier I and three Tier II courses. Survey of anthropological theories exploring self in Western/non-Western cultures through dreams, history, and human development.

405 [T] Medical Anthropology 3 Prereq completion of one Tier I and three Tier II courses. Relationships among disease, curing, culture and environment; non-Western medical systems; political economy of health care.

406 Anthropology of Epidemic Disease and Bioterrorism 3 Human and world response to epidemics, cultural contexts terrorism, biocultural approaches to epidemic disease, bioterrorism in human history.

410 History of American Indian Sovereignty and Federal Indian Law 3 Same as Hist 410.

417 [T] Anthropology and World Problems 3 3 credits Anth, completion of one Tier I and three Tier II courses. Data and methods of cultural anthropology applied to the solution of contemporary human problems, emphasizing sustainable development.

418 Human Issues in International Development 3 Interdisciplinary analysis of complex interaction between tradition and modernity in Third World societies.

430 [M] Introduction to Archaeological Method and Theory 3 Prereq Anth 230; 330 or 331. Archaeological theory in anthropological perspective; current trends in method and theory in American archaeology.

450 Descriptive Linguistics 3 Introduction to analysis and description of natural languages; phonological, syntactic, and semantic analysis of data from a variety of languages. Credit not granted for both Anth 450 and 550. Cooperative course taught by WSU, open to UI students (ANTH 450).

463 Anthropology of Life and Death 3 Prereq Anth 260. Demography, dynamics of evolution, human ecology, and their relationships to the biology of living, historical, and archaeological populations. Credit not granted for both Anth 463 and 563. Cooperative course taught jointly by WSU and UI (ANTH 412).

465 Human Evolution 3 Prereq Anth 260. Human origins in the light of the fossil record and evolutionary theory. Credit not granted for both Anth 465 and 565. Cooperative course taught jointly by WSU and UI (ANTH 411).

468 [T] Sex, Evolution, and Human Nature 3 Prereq 3 hours Anth or Biol; completion of one Tier I and three Tier II courses. Human sexuality, male-female relations, cooperation, violence and parent-child relations examined cross-culturally and in nonhuman primates utilizing evolutionary and biocultural perspectives.

469 [T] Genes, Culture and Human Diversity 3 Prereq completion of one Tier I and three Tier II courses. Relationships between genes, language and culture are explored as a means to understanding world history, genetic and cultural diversity and unity.

480 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.


498 Anthropology Internship V 1 (0-3) to 15 (0-45) May be repeated for credit; cumulative maximum 15 hours. Prereq junior standing. Participation as archaeological or cultural anthropological intern in public or private sectors; requires special arrangement with faculty advisor. S, F grading.

499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

500 Field Methods V 2 (0-6) to 8 (0-24) Prereq permission by application. Training in gathering and analyzing field data.

504 Tribal Peoples and Development 3 Global and historic perspectives on the complex issues surrounding the problem of tribal peoples and development.

507 Advanced Studies in Culture Theory 3 May be repeated for credit; cumulative maximum 6 hours. Prereq 6 hours in social sciences. Evaluation of major theories and methods and their relationship to problems in cultural-social analysis.

510 Fundamentals of Cultural Anthropology 3 Overview of basic concepts and theory in cultural anthropology based on in-depth analysis of selected theoretical and ethnographic materials.

513 Lithic Technological Organization 4 (3-3) Methods and theory of lithic technology.

514 Ceramic Analysis 4 (3-3) Prereq graduate standing or permission of instructor. Basic concepts, methods, and approaches used in the analysis of archaeological pottery.

519 International Development and Human Resources 3 History of and recent changes in international development emphasizing anthropological perspectives.

521 Psychological Anthropology 3 Psychological and anthropological aspects of personhood, self, human development, gender, sexuality, emotion and cognition in various cultures.

528 Historical Ethnography 3 May be repeated for credit; cumulative maximum 9 hours. History culture, ethnography, theoretical, and contemporary problems of selected culture areas.

529 Seminar in Ethnography 3 Prereq graduate standing. Methodological, stylistic and craft issues in the process and product of ethnography.

530 Archaeological Method and Theory 3 History of archaeological method and theory; analysis of current literature.

535 Cultural Resource Management 3 Prereq graduate standing. Role of archaeology in historic preservation and resource conservation; legal and institutional frameworks; research and interpretation in a CRM context. Cooperative course taught by WSU, open to UI students (ANTH 535).

537 Quantitative Methods in Anthropology 4 (3-3) May be repeated for credit; cumulative maximum 8 hours. Prereq undergraduate Stat course. Sampling, exploratory data analysis, inferential statistics, and use of SAS in anthropological research with emphasis on archaeology.

539 Prehistory of the Southwest 3 Prehistory of the American Southwest; emphasis on Pueblo, Mogollon and Hohokam traditions and relationships to historic native groups.

540 Prehistory of the Northwest Coast 3 Prehistoric cultures, chronologies, and interrelationships on the northwest coast of North America.

543 Prehistory of the Plateau and Basin 3 Prereq graduate standing. Archaeology of the interior Northwest and Great Basin.

545 Historical Archaeology 3 Excavation and analysis of historical archaeological sites; acculturational implications. Cooperative course taught by UI, open to WSU students (ANTH 531).

546 Complexity in Small Scale Societies 3 Prereq Anth 530; graduate standing. Seminar focused on classic literature and current issues relevant to complexity in small scale societies, predominately covering hunter-gatherer systems.

547 Models and Simulation 3 Models and model-building as an anthropological approach to present and past cultures.

548 Hunters and Gatherers: Past and Present 3 Prereq graduate standing. Introduction to hunter-gatherer studies in anthropology and archaeology exploring uses of evolutionary approaches to modeling and reconstructing hunter-gatherer behavior in contemporary and prehistoric contexts.

549 Settlement and Agro-Pastoralism 3 Prereq Anth 530; graduate standing. Development of settled communities and food production through evaluation of their social, economic and spatial configurations.

550 Descriptive Linguistics 3 Graduate-level counterpart of Anth 450; additional requirements. Credit not granted for both Anth 450 and 550. Cooperative course taught by WSU, open to UI students (ANTH 550).
554 Anthropological Field Methods Seminar 3 Prereq Anth 450 or 550. Elicitation, recording techniques and analysis of sociocultural and linguistic field data.


562 Evolutionary Method and Theory in Anthropology and Archaeology 3 Prereq permission of instructor. A graduate-level seminar-based course focusing on the evolutionary analysis of past and present human behavior.

563 Anthropology of Life and Death 3 Prereq Anth 260. Graduate-level counterpart of Anth 463; additional requirements. Credit not granted for both Anth 463 and 563. Cooperative course taught jointly by WSU and UI (ANTH 512).

564 Advances in Evolution and Human Behavior 3 Prereq one biology or biological anthropology course; one upper-division behavioral science course; graduate standing. Recent trends in the study of evolution and human behavior.

565 Human Evolution 3 Prereq Anth 260. Graduate-level counterpart of Anth 465; additional requirements. Credit not granted for both Anth 465 and 565. Cooperative course taught jointly by WSU and UI (ANTH 511).

567 Primate Behavioral Ecology 3 Prereq one biology or biological anthropology course; junior or graduate standing. Seminar-based course focusing on evolutionary analysis of primate behavior, morphology and ecology.

569 Evolutionary Cultural Anthropology 3 Prereq graduate standing. Evolutionary nature of culture and its interactions with human biology (genes) and ecology.

570 Sediments in Geoarchaeology 4 (3-3) Sediment-forming processes, sedimentological techniques, reconstruction of Quaternary environments, and sedimentology of site-forming processes.

573 Zooarchaeology 4 (2-6) Identification of animal bones from archaeological sites, methodological and theoretical techniques for interpreting faunal remains. Cooperative course taught by WSU, open to UI students (ANTH 573).

576 Palynology 4 (3-3) Pollen and spore morphology, evolution, production, dispersal, and preservation; index fossils, dating, archaeology, and vegetational history. Field trip required.

581 Comparative Biology of Social Traditions 3 Prereq Anth 260 or Biol 106; senior or graduate standing. Phylogenetic and modeling perspectives used to examine the evolution of social learning and cultural transmission in humans and other animals.

591 Special Topics in Anthropology 3 May be repeated for credit; cumulative maximum 9 hours. Examination of current areas of anthropological theory and research.

593 Publishing and Professional Communication 3 Preparation of original research reports; survey of types of professional communication, and of standards and techniques.

596 IPEM Seminar 1 May be repeated for credit; cumulative maximum 6 hours. Prereq IGERT fellow. Symposia and project work sessions for the WSU/UW IGERT; Program in Evolutionary Modeling. S, F grading.

598 Advanced Anthropology Internship V 1 (0-3) to 15 (0-45) May be repeated for credit; cumulative maximum 15 hours. Prereq graduate standing. Participation as archaeological or cultural anthropological intern in public or private sectors; requires special arrangement with faculty advisor. S, F grading.

599 Archaeological Field School V 2 (0-6) to 8 (0-24) Prereq graduate standing and permission of instructor by application. Training in methods of archaeological data recovery and analysis.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Department of Apparel, Merchandising, Design And Textiles

amdt.wsu.edu
Kruegel 51
509-335-1233

Chair, K. Leonas; Professor, L. Bradley; Associate Professors, C. Black, J. Ellis, C. Salasso; Assistant Professor, T. Chi; Senior Instructor, P. Fischer.

Apparel, Merchandising, Design and Textiles offers Bachelor and Master of Arts degrees, and also participates in the Interdisciplinary Doctoral Program.

As the premier and only state-supported 4-year apparel and textiles program in Washington we offer students all of the tools necessary to succeed in the fashion, retail, textiles and apparel industries. There are many career options in this industry; in the state of Washington in 2010 there were 51,900 careers in the textile and apparel industry and in the United States 421,800 careers in 2009. (Seattle Enterprise and OTECA, 2010). We have state of the art classroom equipment, fully equipped apparel design studios, a program and curriculum aligned with industry, and nationally and internationally recognized faculty who challenge students to understand all the aspects of the discipline. Students in the AMDT department graduate with a thorough understanding of the interdisciplinary nature of the apparel and textile industry from concept to consumer. The curriculum options are designed to teach students to:

- Recognize the global world that we live in today by understanding how dynamic and diverse political, socio-cultural, and economic systems and how they impact human behavior and industry processes in a global economy.
- Increase knowledge of the Industry by applying industry relevant decision making and creative processes in the selection, production and placement of goods and services that meet consumer needs in the textile, apparel & retail complex using industry best practices.
- Utilize technology by applying knowledge and skills regarding current technology to retrieve, analyze and disseminate information, and develop solutions relevant to the textile, apparel, and retail complex.
- Improve verbal, visual, and written communication skills by demonstrating the ability to effectively communicate ideas verbally, visually and in writing as team members and/or leaders within a professional environment.
- Think analytically and critically by demonstrating analytical and critical thinking skills to recognize problems, collect, analyze, synthesize information, develop, evaluate and implement solutions.
- Develop an understanding of sustainable practices by understanding environmentally sound, economically viable, and socially supportive sustainable practices in the textile, apparel & retail complex.

Students can choose an emphasis in apparel design or merchandising. Each option includes the program's core courses, as well as option requirements and electives. Students can individualize their expertise by exploring minors and supporting work in fine arts, business administration, marketing, international business, and communication.

An internship is a valuable way to gain experience and contacts in the industry. Having an internship makes students much more competitive when they graduate and many internships lead to job opportunities after graduation. There are thousands of companies in the U.S. and abroad that offer internships in the textile and apparel field. Internship experiences help students gain work experience, better their understanding of the industry, and determine what career path is best for them.

Normally the applicant for graduate study should have an undergraduate major in apparel, merchandising, design, or textiles. However, candidates with a good record in related fields (such as business, economics, marketing, psychology, sociology, and etc.) may be well prepared for certain areas of advanced study. All graduate students must show competency in their area of study (through an undergraduate degree or industry experience) in order to earn their degree. Please refer to WSU Graduate catalog and web site at www.wsu.edu:8080/~gradsch.

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.
**APPAREL 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

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
<th>Course Code(s)</th>
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<tbody>
<tr>
<td>First Term</td>
<td></td>
<td><strong>AMT 108</strong>&lt;br&gt;Engl 101 [W] (GER) &lt;br&gt;FA 101 [H] (GER) recommended &lt;br&gt;Soc 101 [S,D] or Psych 105 [S] (GER) recommended</td>
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<td>Second Term</td>
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<td><strong>AMT 208</strong> &lt;br&gt;ComS 102 [C] or H D 205 [C] (GER) recommended &lt;br&gt;GenEd 111 [A] (GER) &lt;br&gt;MBioS 130 [B] (GER) recommended</td>
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<tr>
<td>First Term</td>
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<td><strong>AMT 210</strong> &lt;br&gt;AMT 211 &lt;br&gt;AMT 220 &lt;br&gt;Stat 212 [N] (GER) recommended</td>
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<td><strong>AMT 212</strong> &lt;br&gt;AMT 368 &lt;br&gt;Physical Sciences [P] (GER) &lt;br&gt;EconS 101 [S] (GER) &lt;br&gt;Elective &lt;br&gt;Complete Writing Portfolio</td>
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<td>Third Year</td>
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<td><strong>AMT 311</strong> &lt;br&gt;AMT 314 &lt;br&gt;AMT 410 &lt;br&gt;AMT Elective &lt;br&gt;Intercultural Studies [L,G,K] (GER)</td>
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<td><strong>AMT 318</strong> &lt;br&gt;Biological Sciences [B] (GER) &lt;br&gt;AMT 312 &lt;br&gt;AMT 420 [M]</td>
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<tr>
<td>Fourth Year</td>
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<td><strong>AMT 417 [M]</strong> &lt;br&gt;Electives</td>
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### 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, Mktg 360, and EconS 352. A course may only be repeated once. Courses required in these programs cannot be taken on a pass, fail basis. **First Year**

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<td>Second Term</td>
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<td><strong>AMT 208</strong> &lt;br&gt;GenEd 111 [A] (GER) &lt;br&gt;MBioS 130 [B] (GER) recommended &lt;br&gt;Soc 101 [S,D] or Psych 105 [S] (GER) recommended &lt;br&gt;Stat 212 [N] (GER) recommended</td>
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<tr>
<td>First Term</td>
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<td><strong>AMT 210</strong> &lt;br&gt;Electives &lt;br&gt;Complete Writing Portfolio</td>
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<tr>
<td>Second Term</td>
<td></td>
<td><strong>AMT 212</strong> &lt;br&gt;Biological Sciences [B] (GER) &lt;br&gt;ACCTG 230 &lt;br&gt;Elective &lt;br&gt;Complete Writing Portfolio</td>
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<tr>
<td>Third Year</td>
<td></td>
<td><strong>AMT 314</strong> &lt;br&gt;AMT 318</td>
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</tbody>
</table>

### Description of Courses

**APPAREL, MERCHANDISING, DESIGN & TEXTILES**

**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) Prereq AMT 108 or permission of instructor. 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 basic textile components including fibers, yarns, structure, coloration, and finishes relative to performance standards and expectations for intended use.

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 Global survey of dress and textiles from prehistory to mid-1800s.

307 Consumer Behavior in Fashion 3 Prereq junior standing; certified major in apparel, merchandising, design and textiles. Concepts and theories from social sciences to consumer behavior research related to fashion and apparel marketing.
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 Prereq AMT 208, 210; and certification in Apparel Design or Merchandising. 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; 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.

368 Illustration and Rendering Techniques 3 (0-6) Prereq F A 110. Illustration and rendering used for costume and fashion design.

408 [T] Visual Analysis and Aesthetics 3 Prereq AMT 368, Com 321, F A 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 210; certification in Apparel Design. 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 3 (0-6) 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. 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.

414 Creativity: Development of Consumer Products 3 Prereq junior standing; certified major in apparel, merchandising, design and textiles. Processes and techniques to stimulate creativity from a multidisciplinary approach for the development of new consumer products.

417 [T,D] 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 1-3 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. Additional cost associated with class. See department for details.


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 international culture integrated with the field of textiles and apparel in industry centers in the US. Additional cost associated with class. See department for details.

430 Soft Goods Supply Chain Management 3 Prereq AMT 318. Stages and functional areas of soft goods supply chain management.

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. Additional cost associated with class. See department for details.

440 Advanced Retail Management 3 Prereq AMT 318; EconS 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 (0-5) to 10 (0-20) May be repeated for credit; cumulative maximum 12 hours. Prereq certification in AMT; AMT 488. 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 May be repeated for credit; cumulative maximum 4 hours. Prereq by interview only.

496 Special Event Production V 1 (0-2) to 3 (0-6) May be repeated for credit; cumulative maximum 6 hours. 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.

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 (0-3) to 4 (0-12) 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 c//. 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 V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for 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 eligible for the Master of Architecture. This degree program is accredited by the American Council for Construction Education (ACCE). 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).

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 the Master of Architecture program. Students with Baccalaureate degrees in disciplines other than architecture are eligible to apply for the 3.5 year Master of Architecture program. Please consult the WSU Graduate Catalog and/or www.arch.wsu.edu for specific information regarding this degree as well as admission requirements and course descriptions.

Most states require that an individual intending to become licensed as an architect hold an accredited degree. There are three types of degrees that are accredited by NAAB: (1) the Bachelor of Architecture, which requires a minimum of five years of study, (2) the Master of Architecture and (3) the Arch.D degree. 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. Foreign studies options include WSU sponsored programs, and programs offered by other institutions. Coordination is through the WSU Education Abroad Office.

Construction Management

Students planning to transfer into Architecture or 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 either 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

First Term

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<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arch 101</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 107, if necessary, or Electives</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
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Second Term

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<tr>
<th>Course</th>
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<tr>
<td>Arch 103</td>
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<tr>
<td>Arch 202</td>
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<td>F A GER Elective [H, LG]</td>
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<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 171 [N] or 206 [N] (GER)</td>
<td>3 or 4</td>
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1. 3 hours of American Diversity [D] are required and can be combined with Humanities and Fine Arts, Social Sciences, or Tier III GER.

2. 3 hours of Fine Arts Electives are required. Fine Arts GERs will fulfill this requirement.

3. 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 (127 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.

**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.

**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.

**Second Year**

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<td>Intercultural Studies [L,G,K] (GER)</td>
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<td>Phys 101 [P] or 201 [P] (GER)</td>
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**Second Term**

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<td>Communication Proficiency [C,W] (GER)</td>
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<td>Physical Sciences [P] (GER)</td>
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**Third Year**

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**Fourth Year**

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<td>Arch 401</td>
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<tr>
<td>Arch 409 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Arch 463</td>
<td>3</td>
</tr>
<tr>
<td>Arch 472</td>
<td>3</td>
</tr>
</tbody>
</table>

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.

**Application/Portfolio/Notification Deadlines:**

<table>
<thead>
<tr>
<th>Application/Portfolio/Notification Deadlines:</th>
<th>May 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>All second-year applications due:</td>
<td></td>
</tr>
<tr>
<td>Portfolios due from applicants who did not complete Arch 101, 103, 202 at WSU. June 1</td>
<td></td>
</tr>
</tbody>
</table>

**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 ComSt 102 or H D 205, Cst M 102, GenEd 110, 111, EcosN 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**

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Term</td>
<td>ComSt 102</td>
<td>[C or H D 205 [C] (GER)]</td>
<td>3 or 4</td>
</tr>
<tr>
<td></td>
<td>EcosN 101</td>
<td>[S (GER)]</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Engl 101</td>
<td>[W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>GenEd 110</td>
<td>[A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>GeoL 101</td>
<td>[P] (GER)</td>
<td>4</td>
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</table>

**Second Term**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities</td>
<td>[H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 102</td>
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<td>2</td>
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<tr>
<td>EcosN 102</td>
<td>[S] (GER)</td>
<td>3</td>
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<tr>
<td>GenEd 111[A]</td>
<td>(GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 171[N]</td>
<td>(GER)</td>
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**CONSTRUCTION MANAGEMENT DEGREE PROGRAM (123 HOURS)**

**Second Year**

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>First Term</td>
<td>Arch 351</td>
<td></td>
<td>3</td>
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<tr>
<td></td>
<td>B Law 210</td>
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<td>3</td>
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<tr>
<td></td>
<td>Cst M 201</td>
<td></td>
<td>3</td>
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<td></td>
<td>Cst M 254</td>
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<td>2</td>
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<tr>
<td></td>
<td>Phys 101</td>
<td>[P] (GER)</td>
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**Second Term**

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<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>Intercultural Studies</td>
<td>[I,G,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Acctg 230</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Arch 352</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Cst M 202</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Cst M 252</td>
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**Third Year**

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<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>First Term</td>
<td>Arch 432</td>
<td></td>
<td>3</td>
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<tr>
<td></td>
<td>C E 301</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Cst M 356</td>
<td></td>
<td>3</td>
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<tr>
<td></td>
<td>Cst M 370</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Cst M 451</td>
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**Second Term**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Arch 433</td>
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<td>3</td>
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<tr>
<td>Biological Sciences</td>
<td>[B] (GER)</td>
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<tr>
<td>Cst M 357</td>
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<td>3</td>
</tr>
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<td>Cst M 362[M]</td>
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<td>Cst M 371</td>
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</table>

**Fourth Year**

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<th>Term</th>
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<tbody>
<tr>
<td>First Term</td>
<td>Arch 463</td>
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<tr>
<td></td>
<td>Cst M 460</td>
<td></td>
<td>3</td>
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<tr>
<td></td>
<td>Cst M 462</td>
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</tr>
<tr>
<td></td>
<td>Cst M Elective</td>
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<td>3</td>
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</tbody>
</table>

203 Architectural Design II 4 (0-8) Prereq Arch 201. Introduction to architectural design focusing on the art and aesthetics of structural expression and principles of structure as an ordering system.

209 Design Theory I 3 Prereq certified Arch major; c// in Arch 203. Design theory relating to building technology, systems and crafts which influence design decisions.

210 Digital Analysis and Representation 3 (2-3) Prereq certified architecture major. Introduction to analysis and representation with a focus on the use of digital tools.

220 [H] 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 3Prereq 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.

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. 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/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/c in Arch 401 or 403. Advanced design theory relating to social and environmental issues which influence housing design for the urban environment.

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.

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.

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 systems. 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 3 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 (0-3) to 16 (0-48) May be repeated for credit; cumulative maximum 16 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.

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 Cpt S 151, 153, 154, or 203. Architectural and construction applications of computer graphics, management, computer-aided design.

499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

510 Architectural Design Studio 6 (0-12) Graduate studio experience researching a single topic of architectural relevance (i.e. geology, material science, biological systems engineering). Field trip required.

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 430; Arch 403. Tectonic theory of concrete and metal construction with focus on skin design and technology as formative elements in architecture.

540 Research Methods 3 Prereq graduate standing. Research methods, from quantitative to 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.

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.

563 Architectural Structures III 3 Prereq Arch 515 or c/c. Graduate-level counterpart of Arch 463; additional requirements. Credit not granted for both Arch 463 and 563.

564 Architectural Structures IV 3 Prereq graduate standing; Arch 511 or c/c. Graduate-level counterpart of Arch 464; additional requirements. Credit not granted for both Arch 464 and 564.

570 Advanced Architectural Studio/Laboratory 6 (0-12) In-depth study of design problems relating to cultural, environmental, technological and other issues as related to the student's area of emphasis.

571 Advanced Architectural Studio II 6 (0-12) Prereq Arch 570; graduate standing. Drawing from architectural historical and theoretical research, urban architectural design case study, research in the arts, humanities and social sciences.

573 Ethics and Practice 3 Prereq graduate standing. Ethical and professional practice issues related to the business and practice of architecture; investigations into marketing client and business orientation.

577 Theories and Methods of Urban Construction 3 Prereq graduate standing or certified Arch major with senior standing. Morphology, theoretical concepts, planning and spatial structure of cities and analysis of the transformation of the city core in Europe and America.
580 Architecture Internship V 1-4 May be repeated for credit. Prereq graduate student in M Arch degree program. Placement in an approved industrial, professional, or governmental situation for specialized or general experience.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination. V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination V 1-6 May be repeated for credit. S, F grading.

CONSTRUCTION MANAGEMENT

Cst M

102 Introduction to the Built Environment 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 Arch or Cst M major. Introduction to primary materials in construction of building envelopes, interiors, interior surfaces and finishes using Construction Specification Institute (CSI) format.

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.


356 Sub-Structures 3 Prereq Arch 352, Cst M 262; certified Cst M major. Methods and procedures for site work, excavation, dewatering, building foundation and equipment, productivity, finance and safety requirements.

357 Super Structures 3 Prereq Cst M 356; certified Cst M major. Methods, procedures and requirements for constructing a commercial structure from ground elevation up.

362 [M] Legal Aspects of Construction and Design 3 Prereq Cst M 252; certified construction management major. Statutory and common law governing the practice of design and construction in the US; emphasis in architecture and construction project contract administration.

368 (468) Safety and Health 3 Prereq junior standing; certified major in construction management. Role and function of safety and health in the construction industry including OSHA compliance, requirements and regulations.

370 Estimating 1 3 (2-1) Prereq certified Cst M major; Cst M 252. Certified civil engineering majors may take by permission. Applications of quantity survey, techniques in creation of unit costs, introduction of job expenses and bid presentation.

371 Estimating II 3 (2-3) Prereq certified Cst M major; Cst M 370. Bidding application, advance concepts in the creation of imot csp and computer software applications.

440 Architectural Acoustics for Construction Management 2 Prereq Phys 101 or higher; Math 107 or higher. Same as Arch 440.

451 Delivery Systems 3 Prereq certified Cst M major; Cst M 371. Design/construction process and project delivery systems/approaches; analysis of construction management: the construction management process.

458 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.

469 Residential Green Building 3 Prereq certified construction management major; senior standing. Residential construction segments; sustainable products and practices applicable to residential construction.

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] Senior Capstone Project 3 Prereq Cst M 460, MgtOp 301; certified Cst M major. Simulation of real world competition for CM at Risk (CM/GC) format.

482 Conceptual Estimating for Architects 3 Prereq junior standing; certified major in architecture or construction management. Quantity survey, price extension and bidding as applied to architecture; concepts of pricing, value engineering, and ethics.

495 Seminar in Construction Management V 1-4 May be repeated for credit; cumulative maximum 4 hours. 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 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

Asia Program

libarts.wsu.edu/asia
Wilson 310
509-335-3267

Program Director and Associate Professor D. Pitz (History, East Asia); Professors, P. Tansuhaj (International Business, South East Asia), M. Tolmachova (History, Middle East), M. Myers (Philosophy and Religion, South Asia, East Asia), C. S. Ivory (Art History, the Pacific), R. A. Jassua (Community and Rural Sociology, Japan); Associate Professors, N. Kawamura (History, East Asia), R. Sun (History, East Asia), P. Thiers (Political Science, East Asia); Assistant Professors, E. Anderson (History, Japan), W. Brecher (Japanese), P. Narayanan (English, South Asia), X. Wang (History), C. Wilkinson-Weber (Anthropology, South Asia); Clinical Assistant Professor, L. Gerber (History, China), Instructors, W. Cao (Chinese), R. Chan (History, East Asia), K. Nilimi (Japanese), L. Rahman-Turner (History/Anthropology, South Asia), R. Snyder (Philosophy, East Asia, South Asia); Professors Emeriti, T. Kennedy (History, China), A. Spitzer (Library).

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 in East Asian Studies 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

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
<th>Courses</th>
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<tr>
<td>First Term</td>
<td></td>
<td>Biological Sciences [B] (GER)</td>
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<tr>
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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>Foreign Language Elective†</td>
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<tr>
<td>Second Term</td>
<td></td>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<tr>
<td></td>
<td></td>
<td>Asia 270 or 314</td>
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<td></td>
<td>GenEd 111 [A] (GER)</td>
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<td></td>
<td></td>
<td>Math Proficiency [N] (GER)</td>
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<tr>
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<td>Foreign Language Elective†</td>
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<tr>
<td>Second Year</td>
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<td>Asia 131, 275, or 315</td>
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<td>Asia 272, 273, or 306</td>
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Fourth Year

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<td>Major Coursework</td>
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<td>Electives</td>
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</tbody>
</table>

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 8 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 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): Asia humanities courses (H or G GER); and Asia 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 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 Asian Language available through study abroad; two from Asia 121, 274, 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, 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 towards 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 (see department for an approved list). A minimum cumulative GPA of 2.0 is required for successful completion of the certificate.

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 Asian Language available through study abroad; two from Asia 121, 274, 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, 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 towards 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 (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 PROGRAM

Asia

111 [G] Asian Film 3 Same as Chin 111. Cooperative course taught jointly by WSU and UI (CHIN 111).

120 [G] Traditional Chinese Culture 3 Same as Chin 120.

121 [G] Modern Chinese Culture 3 Same as Chin 121.

122 [G] Traditional Japanese Culture 3 Same as Japn 120.

131 [G] Masterpieces of Asian Literature 3 Same as Chin 131. Cooperative course taught by WSU, open to UI students (CHIN 320).

201 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.
School of Biological Sciences

sbs.wsu.edu
Abelson 312
509-358-3553

Professor and Director, Larry Hufford; Professor and Director of Sciences, S. Bollens (Vancouver); Associate Professor and Associate Professor and Director, Larry Hufford; Professor and Director of Sciences, S. Bollens (Vancouver); Associate Professor and Associate Director of Graduate Program, Andrew Storfer; Associate Professor and Associate Director of Undergraduate Program, Patrick Carter; Regents Professor, G. Edwards; Professors, K. Beerman, R. A. Black, D. Evans, R. Gomulkiewicz, R. Mack, D. Moffett, C. Onoto, C. Robbins, H. Schwabii, M. Skinner, M. Tegeder, G. Thorgaard; Associate Professors, J. Bishop (Vancouver), M. Dybdahl, M. Knoblauch, R. Lee, J. Mallatt, A. McCubbin, M. McGuire, C. Portfors (Vancouver), E. Reasoon, C. Schultz (Vancouver), P. Verrell; Assistant Professors, J. Busch, J. Brunner, A. Cousins, E. Cespi, H. Hellmann, B. Kemp, E. Schwartz; Clinical Associate Professors, D. Banker (Vancouver), G. Rollwagen-Bollens (Vancouver); Clinical Assistant Professors, L. Carlroye, C. Davitt; Research and Adjunct Faculty, S. Baker, J. Brunnell, D. Holmes, D. Monk, R. Phillips, M. Webster; Senior Instructor/Instructor, B. Marshall, A. Brown; Professors Emeriti, H. Hosick, R. Johnson, K. Kardong, L. Kirchner, M. Kuu, J. Larsen, D. Miller, S. Moffett, J. Paznakas, F. Schreuder, E. 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 at sites such as the 800 acre George E. Hudson Biological Preserve at Smoot Hill. Special facilities include the Franceschi Microscopy and Imaging Center, plant growth facilities, a laboratory for bioanalysis and biotechnology with facilities for both DNA genotyping and stable isotope analyses, and the collections of the Charles R. Conner Museum, and the Marion Ownbey Herbarium.

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 and environmental biology, laboratory research and biotechnology, human health, animal health and welfare, and a variety of other biological specializations.

Candidates for the Bachelor of Science in Biology, the Bachelor of Science in Zoology, or the Bachelor of Science General Studies 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 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: general biology, biology education, botany, ecology/evolutionary biology, entomology, and pre-physical therapy / pre-occupational therapy / pre-physician's assistant. The general biology option provides broad training in the life sciences, particularly for students seeking to continue in professional or graduate school. 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 ecology/evolutionary biology option provides a concentration on ecological and evolutionary biology to address interests in 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 especially aimed 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.

**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 degree 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 of study; 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.

General Studies Biology has two different options. Both options require prerequisites of one year biology, one semester of introductory calculus, one year general chemistry, and one semester organic chemistry. Plan A requires a minimum of 24 semester credits, including at least 15 300-400-level credits, to be completed in biological sciences with a minimum 2.00 gpa. A secondary concentration is required of a minimum of 15 semester credits, including at least six 300-400-level credits, in another academic department, program or area published in the catalog with a minimum 2.00 minor concentration gpa. Plan B requires a combination of biological sciences courses of at least 39 credits in three or more departments or programs; a minimum of 9 credits in each department or program are required, and 21 300-400-level hours must be completed with at least a 2.00 gpa in these courses. The departments and programs from which these courses may be drawn include biology, biochemistry, botany, genetics and cell biology, microbiology, zoology and approved biology-based courses in agriculture. Students may not use General Studies Biology as part of a double major with either biology or zoology.

**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 http://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, genetics and cell biology, 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)**

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours</th>
</tr>
</thead>
<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>
<td>3</td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
<td></td>
</tr>
<tr>
<td>Biol 107 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 106 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 140 [N] or 171 [N] (GER)</td>
<td>4</td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Biol 301</td>
<td>4</td>
</tr>
<tr>
<td>Chem 345</td>
<td>4</td>
</tr>
<tr>
<td>Phys 101 [P] or 201 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td><strong>Second Term</strong></td>
<td>Hours</td>
</tr>
<tr>
<td>Communication Proficiency [C,W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Phys 102 [P] or 202 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
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<tr>
<td>Complete Writing Portfolio</td>
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</table>

**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>Biol 320</td>
<td>4</td>
</tr>
<tr>
<td>Biol 372 [M]</td>
<td>4</td>
</tr>
<tr>
<td>Stat 212, 412, or Psych 311</td>
<td>3 or 4</td>
</tr>
<tr>
<td><strong>Second Term</strong></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>Biol 332</td>
<td>4</td>
</tr>
<tr>
<td>Biol 460, 462, or 469</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Program Option Courses or Electives</td>
<td>2 or 3</td>
</tr>
</tbody>
</table>

**Fourth Year**

<table>
<thead>
<tr>
<th>First Term</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>Biol 405</td>
<td>3</td>
</tr>
<tr>
<td>Biol 409</td>
<td>4</td>
</tr>
<tr>
<td>Program Option Courses or Electives</td>
<td>6</td>
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<tr>
<td><strong>Second Term</strong></td>
<td></td>
</tr>
<tr>
<td>Program Option Courses or Electives</td>
<td>12</td>
</tr>
<tr>
<td>Tier III Course [T] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

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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, MBioS 401 (Biol 300-level courses may be taken with approval of the advisor and instructor).

**BIOLOGY - ECOLOGY AND EVOLUTIONARY BIOLOGY OPTION (120 HOURS)**

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours</th>
</tr>
</thead>
<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>
<td>3</td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
<td></td>
</tr>
<tr>
<td>Biol 107 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 106 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 140 [N] or 171 [N] (GER)</td>
<td>4</td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Biol 301</td>
<td>4</td>
</tr>
<tr>
<td>Phys 102 [P] or 202 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Program Option Courses or Electives</td>
<td>4</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Complete Writing Portfolio</td>
<td></td>
</tr>
</tbody>
</table>

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First Term  Hours  
Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)  6
Biol 372 [M]  4
Program Option Courses or Electives  7

Second Term  Hours  
Arts & Humanities [H,G] or Social Sciences [S,K] (GER)  3
Intercultural Studies [I,G,K] (GER)  3
Program Option Courses or Electives  6 or 7
Stat 212, 412, or Psych 311  3 or 4

Fourth Year  
First Term  Hours  
Biol 405  3
Program Option Courses or Electives  11

Second Term  Hours  
Program Option Courses or Electives  13 or 14
Tier III Course [T] (GER)  3

Biology - Education Option (142 Hours)  
First Year  
First Term  Hours  
Biol 106 [B] (GER)  4
Chem 105 [P] (GER)  4
Engl 101 [W] (GER)  3
GenEd 110 [A] (GER)  3

Second Term  Hours  
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  Hours  
Arts & Humanities [H,G] or Social Sciences [S,K] (GER)  3
Chem 345  4
Phys 101 [P] or 201 [P] (GER)  4

Second Term  Hours  
Biol 301  4
Engl 201 [W], 298, 301 [W], 302 [W], or 402 [W] (GER)  3
Phys 102 [P] or 202 [P] (GER)  4
T & L 301  3
T & L 317  2
Complete Writing Portfolio

Third Year  
First Term  Hours  
Biol 372 [M]  4
Arts & Humanities [H,G] [D] (GER)  3
Degree Program Electives  6
Stat 212, 412, or Psych 311  3 or 4

Second Term  Hours  
Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)  6
MBioS 305  3
MBioS 306  2
T & L 464  3
T & L 465  3
T & L 466  2

Fourth Year  
First Term  Hours  
Biol 405  3
Biol 430  4
EdPsy 468  3
MBioS 303  4
T & L 467  3

Second Term  Hours  
Biol 499  2 or 3
Intercultural Studies [I,G,K] (GER)  3
T & L 469  2
T & L 470  3
Tier III Course [T] (GER)  3

Fifth Year  
First Term  Hours  
T & L 415  16

Second Term  Hours  
MBioS 306  3
Entom 344 [M]  2
MBioS 305  4
Entom 343 [M]  3
Entom 342 [M]  2
MBioS 303  3
Entom 439 [M] or 440 [M]  4
Entom 441, 445, 446, 447, 472, MBioS 340, 446.

Biology - Entomology Option (120 Hours)  
First Year  
First Term  Hours  
Biol 106 [B] (GER)  4
Chem 105 [P] (GER)  4
Engl 101 [W] (GER)  3
GenEd 110 [A] (GER)  3

Second Term  Hours  
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  Hours  
Biol 106 [B] (GER)  4
Chem 105 [P] (GER)  4
Engl 101 [W], 201 [W], or 301 [W] (GER)  3
GenEd 110 [A] (GER)  3

Second Term  Hours  
Biol 107 [B] (GER)  4
Chem 106 [P] (GER)  4
Communication Proficiency [C,W] (GER)  3
Math 140 [N] or 171 [N] (GER)  4

Second Year  
First Term  Hours  
Arts & Humanities [H,G] (GER)  3
Chem 345  4
Entom 343 [M]  3
Entom 344 [M]  2
GenEd 111 [A] (GER)  3

Second Term  Hours  
Biol 120, 320, or 332  4
Biol 301  4

Biology - General Option (120 Hours)  
First Year  
First Term  Hours  
Biol 106 [B] (GER)  4
Chem 105 [P] (GER)  4
Engl 101 [W] (GER)  3
GenEd 110 [A] (GER)  3

Second Term  Hours  
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  Hours  
Arts & Humanities [H,G] (GER)  3
Chem 345  4
Communication Proficiency [C,W] (GER)  3
Phys 101 [P] or 201 [P] (GER)  4

Second Term  Hours  
Biol 301  4
MBioS 303  4
Phys 102 [P] or 202 [P] (GER)  4
Social Sciences [S,K] (GER)  3
Complete Writing Portfolio

Third Year  
First Term  Hours  
Arts & Humanities [H,G] or Social Sciences [S,K] (GER)  3


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, 462, 463, 469, Entom 343, MBioS 340, 440, 442, 450. One course must fulfill [M] requirement.
Biol 372 [M] 4
Program Option Courses or Electives 8 or 9

**Second Term**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Stat 212, 412, or Psych 311</td>
<td>3 or 4</td>
</tr>
<tr>
<td></td>
<td>Program Option Courses or Electives</td>
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**Fourth Year**

**First Term**

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<tr>
<th>Hours</th>
<th>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</th>
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</thead>
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<tr>
<td></td>
<td>Intercultural Studies [I,G,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>MBioS 305</td>
<td>2</td>
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<td>Program Option Courses or Electives</td>
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<tr>
<td></td>
<td>Psych 333</td>
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**Second Term**

<table>
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<tr>
<th>Hours</th>
<th>Biol 405</th>
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<tr>
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<td>Tier III Course [T] (GER)</td>
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<tr>
<td></td>
<td>Program Option Courses or Electives</td>
<td>10</td>
</tr>
</tbody>
</table>

1 A minimum of 9 credits of Biological Science courses should be selected from the following courses or chosen in consultation with an advisor: Anth 260; Biol 324, 352, 491, 495, MBioS 303, 423, 440; or Neuro 301, 404, 450.

**ZOOLOGY - GENERAL OPTION (122 HOURS)**

**First Year**

**First Term**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Biol 106 [B] (GER)</th>
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**Third Year**

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**Fourth Year**

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<th>Hours</th>
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<td>Biol 405</td>
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**ZOOLOGY - PRE-MEDICINE/PRE-DENTISTRY OPTION (121 HOURS)**

**First Year**

**First Term**

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<td>Chem 348</td>
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**Third Year**

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<td>Biol 372 [M]</td>
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**Fourth Year**

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<td>Program Option Courses or Electives</td>
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Biol 322 or 418 4
Biol 352 3
MBioS 305 3
MBioS 306 2

Second Term Hours
Biol 315 4
Biol 353 4
Stat 212, 412, or Psych 311 3 or 4
Tier III Course [T] (GER) 3

Fourth Year
First Term Hours
Biol 350 or 353 4
Biol 405 3
Intercultural Studies [I,G,K] (GER) 3
Program Option Courses or Electives2 3-6

Second Term Hours
Program Option Courses or Electives2 10-12
Tier III Course [T] (GER) 3
Electives 3

1 Select from Biol 322, 393, 394, 418, 495, Phil 365.

ZOLOGY - 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
First Term Hours
Biol 106 [B] (GER)1 4
Chem 105 [P] (GER)1 4
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3

Second Term Hours
Biol 107 [B] (GER)1 4
Chem 106 [P] (GER)1 4
GenEd 111 [A] (GER) 3
Math 140 [N] or 171 [N] (GER)1 4

First Year
First Term Hours
Biol 102 [P] or 202 [P] (GER)1 4
Program Option Courses or Electives2 6

Second Term Hours
Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 6
Biol 321, 322, or 324 4
Biol 372 [M] 4

Fourth Year
First Term Hours
Biol 350 or 353 4
Biol 405 3
Intercultural Studies [I,G,K] (GER) 3
Program Option Courses or Electives2 3-6

Second Term Hours
Program Option Courses or Electives2 10-12
Tier III Course [T] (GER) 3
Electives 3

1 Science requirements for admission to WSU College of Veterinary Medicine.
2 A minimum of 12 credits of Biological Science courses should be selected from the following courses or chosen in consultation with an advisor:

Minors

Biology
A minor in biology requires a minimum of 20 hours in Biol coursework including Biol 106, 107, 301 and 8 additional hours of Biol courses at the 300-level or above. No more than 2 hours in Biol 490, 491, 494, 495, 496, 497 or 499 may be included in the 20 hours. 9 credit hours must be earned in residence at WSU or through WSU-approved education abroad or educational exchange courses. All coursework for the minor must have a minimum cumulative gpa of 2.0. Students who major in biology or zoology cannot be granted a minor in biology.

Zoology
A minor in zoology requires a minimum of 20 hours, including Biol 106, 107, and one of 321, 322, or 324; and 8 additional hours of biological sciences Biol courses focused on animals. No more than 2 hours of Biol 490, 491, 494, 495, 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. All coursework for the minor must have a minimum cumulative gpa of 2.0.

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 towards 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 all graded courses used to fulfill the requirements of the certificate. A faculty coordinator shall be designated to oversee the certificate approval process.

Description of Courses

BIOLOGY

101 [B] General Biology Lecture 3
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.

102 [B] General Biology 4 (3-3)
Understanding biology as a science and its effect on issues within society. Lecture and laboratory; not for students majoring in the life sciences. Credit granted only to students who have not completed Biol 101, 105, or Biol 101 and 105. 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.

105 [B] General Biology Laboratory 1 (0-3)
Prereq college-level nonlaboratory general biology course; junior standing or permission of instructor. 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 not 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.

130 [B] Biology of the Oceans 3 Survey of the ocean biosphere including physical and chemical aspects and the biology of marine organisms in specific marine environments.

135 [B] Animal Natural History 3 Identification, life history, habitat relations, ecology, behavior, and conservation of animals commonly found in the Pacific Northwest.

140 (MBioS 130) [B] Introduction to Nutritional Science 3 Information related to the interaction of nutrients in the body and factors that govern nutrient requirements.


201 [B] Contemporary Biology 1 Prereq Biol 101, 102, 106, 107, 120, or MBioS 101. Biological information that provides a framework for understanding life processes; impact of biological information on human affairs.


220 Medical Terminology 2 Prereq Biol 106 and Biol 107. Terms and word constructions for health care occupations; format and function of medical records.

233 (MBioS) Human Nutrition, Health, and Disease 3 Rec biology 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.

251 Introductory Human Physiology 4 (3-3) Prereq Biol 102, 106, or 107; rec one semester chemistry. Basic physiological processes in humans from the cellular to the organismal level.

301 General Genetics 4 Prereq Biol 106 or 120; Biol 107; two semesters Chem. Same as MBioS 301. Credit not normally granted for MBioS 301/Biol 301 and Biol 408.

308 [B] Marine Biology 3 Prereq college-level biology or chemistry. Introduction to the marine environment including oceanic, near-shore and estuarine communities of organisms and their roles and interactions.

315 Gross and Microanatomy 4 (3-3) Prereq one semester biology; sophomore standing; cumulative WSU gpa 2.5; or permission of department. Gross and microscopic anatomy of the human body.


322 Invertebrate Biology 4 (3-3) Prereq Biol 106. Phylogenetic relationships, development, and functional ecology of the invertebrate animals.

324 Comparative Vertebrate Anatomy 4 (2-6) Prereq Biol 106. Evolution of vertebrates and their organ systems; correlation of structural modification with function. Cooperative course taught by WSU, open to UI students (BIOL 324).


331 (FSHN) Nutrition in the Human Life Cycle 3 Prereq Biol 140 or 233. The impact of growth, development, maturation, and aging on nutrient requirements throughout the life cycle.

332 Systematic Botany 4 (3-3) 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 cell-tissue level.

353 Mammalian Physiology 4 (3-3) Prereq Biol 106; Biol 352; Rec c/ in organic chemistry. Function and control at the organ-organismic level with emphasis on mammals, including humans; emphasis on human health science applications.

354 Human Anatomy for Health Occupations 4 (3-3) Prereq one semester college-level biology. History and anatomy of humans with non-cadaver-based laboratory utilizing preserved and histological specimens, models and software.

372 [M] General Ecology 4 (3-3) Prereq Biol 106, one semester chemistry. Relationship of organisms with physical and biotic components of their environment at the population, community, and ecosystem level.

390 [B] Stream Monitoring 1 (0-3) Prereq Biol 101 or 106, Chem 101 or 105, or equivalent. Principles and methods of water quality monitoring, including habitat assessment, water chemistry, and biological assessment. Field work and independent research required.

395 [M] Seminar I 2 Literature investigation, oral presentation and written reports of selected topics in biology.

394 Medicine as a Career 1 Prereq junior standing; by interview only. Current issues in medicine; ethical, financial, and personal aspects of medical practice. S, F grading.

401 [T] Plants and People 3 Prereq Biol 102, 106, or 120; completion of one Tier I and three Tier II courses. Relationships between plants and people, especially cultural and economic applications of plants.

403 Evolutionary Biology 3 Prereq Biol 301. The survey of evidence for evolution and operation of evolutionary processes that influence adaptation, diversification and speculation in organisms.


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. Biological basis of sex and its relationship to body function, women and health care, and the impact of social and cultural perspectives on the experience of being female.

408 [T] Contemporary Genetics 3 Prereq junior standing; one Tier I and three Tier II courses. Genetics as it relates to current events; inquiry into the impact of genetic technology on today’s society. Credit not normally granted for MBioS 301/Biol 301 and Biol 408.

409 Plant Anatomy 4 (2-6) Prereq Biol 120 or 106. Developmental anatomy and morphology of vascular plants; economic forms. Credit not granted for both Biol 409 and 509.

410 Marine Ecology 3 Prereq Biol 106; Biol 107; 6 hours of physical and/or biological science. The ecology and conservation of marine organisms, communities, and ecosystems.

412 Biology and Management of Fishes 3 (3-3) Prereq Biol 106. Evolution, identification, life history, and management of important fish species.

413 Fish Ecology 3 Prereq Biol 106, 107. Examination of physical, chemical, and biological factors that affect fish populations and communities, with emphasis on environmental stressors. Cooperative course taught by UI, open to WSU students (FISH 314).

416 Principles of Fisheries Management 4 (3-3) Prereq UI Fish 314, 411; Stat 251. Same as NATRS 416. Cooperative course taught by UI, open to WSU students (FISH 419).


420 (318) Plant Physiology 3 Prereq Biol 106 or 120; rec organic chemistry. Water relations, mineral nutrition, photosynthesis, respiration, and growth of plants.

421 (319) Plant Physiology Laboratory 1 (0-3) Prereq Biol 420 or c/. Laboratory for Biol 420.


425 Crop Biotechnology 3 Prereq introductory biology. Same as CropS 425.

430 Methods of Teaching Science 3 (2-3) Prereq 36 hours science. Methods, philosophy, and structure of science; application in teaching middle and secondary school science courses.


456 Neuroethology 3 Prereq Biol 301, MBio 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.

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.

469 Ecosystem Ecology and Global Change 3 Prereq Biol 372; Chem 106. Historic and current factors controlling the function of ecosystems and their responses to natural and human caused global change. Credit not granted for both Biol 469 and 569.


476 Epigenetics and Systems Biology 3 Prereq Biol 301. Current literature based course on epigenetics and systems biology with topics in environmental epigenetics, disease etiology, and role epigenetics in evolutionary biology. Credit not granted for both Biol 476 and 576.

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 Clinical Experience V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 20 hours. Prereq Psych 105; Biol 315; major in biology or zoology; junior standing; by interview only. Work experience under supervision of a qualified professional in a clinical setting. S, F grading.

492 Topics in Biology V 1-3 May be repeated for credit; cumulative maximum 6 hours.

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. Same as Math 494. Cooperative course taught jointly by WSU and UI (MAT 494). S, F grading.

495 Internship in Biology, Botany, and Zoology V 1 (0-3) to 4 (0-12) 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.

499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

500 Seminar 1 May be repeated for credit. Prereq 20 hours Biol. S, F grading.


504 Experimental Methods in Plant Physiology 3 (2-3) Rec Biol 320. Advanced techniques and instrumental methods applicable to research in plant physiology.

509 Plant Anatomy 4 (2-6) Graduate-level counterpart of Biol 409; additional requirements. Credit not granted for both Biol 409 and 509.

511 Reproductive Biology of Fishes 2 Prereq graduate standing. Covering all aspects of the reproductive biology of fishes. The class will meet once per week for 2 hours; the first hour will be used for a formal lecture, the second hour will be used for informal student presentations/discussion of current literature topics or assigned readings in the field. (Spring only, Alt/ysrs). Cooperative course taught by UI, open to WSU students (BIOL 558).

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, MBio 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 UI students (FISH 519).

515 Fish Physiology 2 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, open to WSU students (FISH 511).

517 Stress Physiology of Plants 3 Prereq graduate standing. Temperature, light, salinity, water effects on physiological processes; mechanistic understanding of stress.

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 (GENE 503).

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 of the world. Approaches, factors, and models used to manage commercial, recreational and subsistence fisheries; and the policy interface of biological systems with governmental and social institutions. (Spring, Alt/ysrs). Cooperative course taught by UI, open to WSU students (FISH 510).

531 Principles of Systematic Biology 3 Prereq graduate standing. Systematic theory; history and current views; approaches to phylogenetic analysis and classification.


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. Cooperative course taught jointly by WSU and UI (FOR 541).

544 Nitrogen Cycling in the Earth’s Systems 3 Prereq graduate standing. Nitrogen dynamics in terrestrial, aquatic, and atmospheric systems; nitrogen transformations in natural and managed systems and responses to human activities.

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 (BIOL 548).
556 Biochemical Adaptation 3 Prereq graduate standing. Relationships between enzyme/macromolecule adaptation and animal performance.

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, neuroethology 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.

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 Ecology and Evolution of Disease 3 Rec Biol 372 and Biol 405. Disease ecology and evolution with a focus on current literature.

566 Mathematical Genetics 3 Prereq graduate standing. Same as Math 563. Cooperative course taught jointly by WSU and UI (BIO 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. Graduate-level counterpart of Biol 469; additional requirements. Credit not granted for both Biol 469 and 569.

570 Diversity of Plants 3 Prereq graduate standing. Morphological, life history, and ecological diversity of major plant clades; emphasis on principles of homology, character transformation, and macroevolution.

575 Systems Biology of Reproduction 3 Graduate-level counterpart of Biol 475; additional requirements. Credit not granted for both Biol 475 and 575.

576 Epigenetics and Systems Biology 3 Graduate-level counterpart of Biol 475; additional requirements. Credit not granted for both Biol 476 and 576.

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.

589 Advanced Topics in Biology V 1-3 May be repeated for credit; cumulative maximum 6 hours. Recent advances in biology.

591 Seminar in Molecular Plant Sciences 1 May be repeated for credit. Same as MPS 515.

593 Seminar 1 1 May be repeated for credit. Literature and problems.

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 May be repeated for credit; cumulative maximum 6 hours. Prereq IGERT fellow. Same as Anth 596. S, F grading.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

 ELECTRON MICROSCOPY

E Mic 586 Special Projects in Electron Microscopy V 2 (0-6) to 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.

**Department of Biological Systems Engineering**

[www.bsys.e.wsu.edu](http://www.bsys.e.wsu.edu)

Smith Hall 213

509-335-1578

Professor and Department Chair, C. O. Stickle; Professors, G. V. Barbosa-Cánovas, S. Chen, G. Hoogenboom, J. Tang, J. Wu, Q. Zhang; Associate Professor, P. Ndegwa; Assistant Professors, M. Garcia-Perey, M. Karkee, H. Lei, R. Peters, S. Sablani, B. Yang; Research Assistant Professors, C. Frear, S. Wang, U. Zaher; Affiliate Faculty, D. Bender, M. Flury, J. Zhang; Adjunct Faculty, W. Elliott, P. Robichaud.

**BIOLOGICAL SYSTEMS ENGINEERING**

Biological and Agricultural Engineering is a multidisciplinary program that offers students flexibility to accommodate a blend of engineering and science in their programs of study and research projects. Students apply engineering and biological principles to conduct high-quality research and to develop and disseminate knowledge and technologies in the areas of agriculture, food, energy, and natural resource systems. The Department offers Ph.D. and M.S. degrees in Biological and Agricultural Engineering, Ph.D. in Engineering Science, and M.S. in Engineering with four areas of emphasis: a) food engineering, b) bioenergy and bioproduct engineering, c) land, air, water resources and environmental engineering, and d) agricultural automation engineering.

Only graduate degrees are offered. See department for more information.

**Description of Courses**

### BIOLOGICAL SYSTEMS ENGINEERING

**BsSyE**

512 Research and Teaching Methods 3 (2-3) Graduate research with an emphasis on biological systems engineering and college instruction.

530 Machine Vision for Biological Systems 3 Image analysis techniques as applied to machine vision applications integrated into autonomous equipment used in specialty crops.

532 Electrohydraulic Systems Control 3 Fluid power transmission, E/H control, control systems and controller design.

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, open to WSU students (BAE 441).

550 Soil and Water Conservation Engineering 3 Land, water and air conservation emphasizing on soil and water engineering concepts, state of science solution techniques, and engineering design.

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).

554 Aquatic System Restoration 3 Prereq Chem 345, C E 583; MBios 101, C E 581. Same as C E 585.
555 Natural Systems for Wastewater Treatment 3 Same as C E 555.

556 Surface Hydrologic Processes and Modeling 3 (2-3) Fundamental hydrologic processes, governing equations and solution methods, GIS techniques commonly used in hydrology, class project on modeling surface hydrology.

557 Nutrient Cycling and Transport 3 Cycling of carbon, nitrogen and phosphorus at global and watershed scales; modeling of transportation and transport in agricultural systems.

558 (S 595) Groundwater Flow and Contaminant Transport 4 (3-3) Prereq Math 315; BsysE 351 or C E 351 or Geol 475. Physics of flow and contaminant transport in saturated porous media including governing equations, well hydraulics and computer modeling.

560 Aquatic Chemistry 3 Prereq C E 518. Same as C.E. 583.

564 Agricultural Waste and Air Quality Management 3 Detailed analyses of agricultural wastes and their potential adverse impacts on the environment; current management systems; reuse and recycle.

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 I 3 Prereq BsysE 481 or Ch E 330. Design of food processing systems; design and simulation of sterilization and pasteurization processes in foods. Cooperative course taught by WSU, open to UI students (FS 582).

583 Food Process Engineering II 3 Prereq BsysE 582. Design of food separation unit operations including concentration, dehydration, and membrane processes.

584 Thermal and Nonthermal Processing of Foods 3 Food preservation methods based on application of thermal and nonthermal processes.

585 Food Packaging 3 Properties of packaging materials, manufacturing of packages, shelf-life testing and food packaging interaction.

593 Thermochemical Biorefinery 3 Prereq graduate standing. Thermochemical biorefinery technologies for biofuels and bioproducts; facility operations, analysis, and design of integrated processes for biofuel and bioproduct production.

594 Design and Analysis of Biomass Conversion Processes and Systems 3 Analysis of bioprocessing and biotreatment processes including energetics, stoichiometry, species competition, process infiltration, product separation and optimization.


596 Biomass Thermo-Chemical Conversion 3 Biomass chemistry, analytical thermochemistry, torrefaction, pyrolysis, gasification and combustion; characterization and uses of thermochemical products.

598 Graduate Seminar 1 May be repeated for credit. Required of all graduate students in biological systems engineering. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. (For PhD in engineering science only.) S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit.

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**Departments of Business**

[wwww.business.wsu.edu](http://www.business.wsu.edu)

Todd Hall 570

509-335-3596

The College of Business (CB) at Washington State University prepares students to become innovative and purposeful leaders with the skill 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 integrated business tools and entrepreneurial perspectives to successfully 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, modern educational facilities in Todd Hall, the home of the college, located at the heart of the WSU campus. Wireless computer connectivity in every classroom and study areas enable students to collaborate both in and out of the classroom. Facilities such as the Financial Markets Lab, the Marriott Hospitality Teaching Center, and the Center for Behavioral Business Research support the delivery of cutting-edge content and enable students to develop real-world skills. Staff in the Scott and Linda Carson Center for Professional Development go beyond the curricular experience helping students develop the skills and connections outside the classroom necessary to move from the life of a student to life as a professional. Over 25,000 WSU business alumni comprise a network of professional contact throughout the world.

The College of Business is among five percent of business schools worldwide to achieve AACSB (The Association to Advance Collegiate Schools of Business, the world’s premier business education accrediting body) accreditation at the bachelor, master, and doctoral levels, and is ranked 11th among business programs at public universities in the western United States by US News and World Report. In addition to the accounting programs receiving specialized AACSB accreditation, the Entrepreneurship program has been ranked in the top 25 in the nation by Entrepreneur magazine and The Princeton Review over recent years while the International Business program maintains a consistent spot in the top 25 in the nation (U.S. News & World Report), and CB sends more students abroad than any other college at WSU. The School of Hospitality Business Management is the top provider of career services to its students, and the program is one of the oldest in the country, celebrating its 75th anniversary in 2007.

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 orally communicate well; and 6) the ability to work effectively in and lead work teams.

WSU business studies are available in Pullman; at urban campuses in Vancouver and Tri-Cities and, through the University’s Distance Degree Program. The college also offers online MBA and Executive MBA programs. Full-time professional advisors dedicated to business students 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.

**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 an average gpa of 2.50 or higher: Accctg 230, 231; B Law 210; MgtOp 215; Econ 101, 102; Engl 101; Math 201, 202; and M&S 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 Hospitality Business Management degree programs at www.business.wsu.edu/advising to be considered in the applicant pool.

**Freshman Admit Program**

Upon acceptance to WSU any incoming freshman is invited to apply for the College of Business...
Freshman Admit Program. This is an opportunity for any student who maintains a 3.0 cumulative GPA and who completes the required program requirements, to be automatically accepted into the College of Business as certified major, upon completion of 60 semester hours and the 10 qualifying core business courses (see certification requirements above).

If a student fails to maintain a 3.0 cumulative GPA or does not meet the other program requirements each semester, then he or she will be dropped from the Freshman Admit Program. Those students dropped from the Freshman Admit Program must go through the normal business certification application process and compete for certification into the College of Business. Please check our website at www.business.wsu.edu/advising for application deadlines.

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 CBE 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 BHM 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 60 credit hours 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:

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 WSU Online 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 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.

5. Complete any two of the following requirements:
   • a brief study abroad program of less than 6 credit hours,
   • an international internship approved by the International Business Institute (maximum of three credit hours),
   • an accepted international course (G, K, Tier III Capstone course as approved through the International Business Institute**). See your advisor for classes), or
   • 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
   • 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 towards 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.

* 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 Bus 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 or H D [C]; EconS 101, 102; Engl 402 [W] or 403 [W]; Fin 325; Math 201, 202; MgtOp 215, 301, 340; Mktg 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.

Minors

Business Administration
To be eligible to certify in a Business Administration minor, students must be certified in a major and have a cumulative GPA of 2.5. The minor in business administration requires a minimum of 18 hours, 9 of which must be upper-division with an overall GPA of at least 2.5 in the required courses. 9 hours must be 300-400 level courses taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Up to 6 hours may be transferred from another institution. The required courses are Acctg 230 and 5 College of Business courses (excluding 498 and 499 courses). Students must ensure that they meet all course prerequisites before enrolling in any College of Business courses.

Description of Courses

BUSINESS ADMINISTRATION

B A

501 Foundations in Marketing V 2-3 May be repeated for credit; cumulative maximum 6 hours. Foundation topics in marketing for MBA students.

502 Foundations in Operations Management V 2-3 May be repeated for credit; cumulative maximum 6 hours. Foundation topics in operations management for MBA students.

503 Foundations in Business Law V 2-3 May be repeated for credit; cumulative maximum 6 hours. Foundation topics in business law for MBA students.

504 Foundations in Finance V 2-3 May be repeated for credit; cumulative maximum 6 hours. Foundation topics in finance for MBA students.

520 Resources, Stakeholders and Competitive Advantage 3 Prereq admission to the MBA program. Creating competitive advantage using resources provided by key stakeholders.

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 \( V \) 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination \( V \) 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination \( V \) 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Department of Accounting

www.business.wsu.edu/accounting
Todd 242
509-335-8541

Professors, R. Greenberg, D. Sanders, R. Toolson, B. Wong-On-Wing; Associate Professors, J. Cote, S. Gill, C. Latham; Assistant Professors, S. Chan, S. Thornburg, M. Yu, Clinical Faculty, K. Joshi, L. Pall, N. Pearson.

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 must complete Honors requirements in place of GERs.

ACCOUNTING DEGREE PROGRAM
(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

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EcomS 101 [S] or EcomS 102 [S] (GER)</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>
<td>3</td>
</tr>
<tr>
<td>Math 201</td>
<td>3</td>
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<tr>
<td>Science Elective [B,P,Q] (GER)(^1)</td>
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\(^1\) For a total of 10 hours of Biological and Physical Sciences.

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<tr>
<td>Biological Sciences [B] (GER)(^1)</td>
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<tr>
<td>EcomS 101 [S] or EcomS 102 [S] (GER)</td>
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Intercultural Studies [I,G,K] (GER) 3
Math 202 [N] (GER) 3
MIS 250 3

Second Year

<table>
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<tr>
<th>First Term</th>
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<tbody>
<tr>
<td>Acctg 230</td>
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<tr>
<td>Arts &amp; Humanities [H,G] (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>Physical Sciences [P] (GER)(^2)</td>
<td>3 or 4</td>
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<tr>
<td>Soc or Psych [S] (GER)</td>
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\(^2\) May not include courses from the business administration core, the set of required accounting courses, or any 498 or 499 courses.

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<td>Acctg 231</td>
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<td>B Law 210</td>
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<td>ComSt 102 [C], 235 [C] or H D 205 [C] (GER)</td>
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<td>MgtOp 215</td>
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<td>Pol S Elective</td>
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<td>Complete Writing Portfolio</td>
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Third Year

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<td>Acctg 335 or 338</td>
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<tr>
<td>Fin 325</td>
<td>3</td>
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<tr>
<td>Mgmt 301</td>
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<tr>
<td>Mktg 360</td>
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<th>Hours</th>
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<tbody>
<tr>
<td>Acctg 331</td>
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<tr>
<td>Acctg 335 or 338</td>
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<tr>
<td>Elective</td>
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<tr>
<td>MgtOp 340</td>
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<td>Tier III Course [T] (GER)</td>
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Fourth Year

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<tr>
<td>400-level Acctg course, Mgmt 487, or 300-400-level MIS or Fin course.(^3)</td>
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<tr>
<td>Acctg 433 [M]</td>
<td>3</td>
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<tr>
<td>Electives</td>
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\(^3\) For a total of 10 hours of Biological and Physical Sciences.

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<tr>
<td>400-level Acctg course, Mgmt 487, or 300-400-level MIS or Fin course.(^3)</td>
<td>3</td>
</tr>
<tr>
<td>Acctg 439 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Engl 402 [W] or 403 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 491 or Entrp 492</td>
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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.

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

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.

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.

436 [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
2 (0-6) to 15 (0-45) 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
1 (0-3) to 4 (0-12) 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 Acctg 331; Acctg 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 Acctg 439. Public accounting and auditing to present; current issues including statistical sampling and computers.

540 Corporate Taxation 3 Prereq admission to Master of Accounting program. Application of federal tax provisions and rules pertaining to corporations, including “S” corporations; tax planning and consequences of corporate decisions.

541 Flow Through Entities 3 Prereq admission to Master of Accounting program. Tax law and preparation requirements for entities in which tax elements passes thorough to the owner's individual income tax return.

542 Gifts, Estates and Trusts 3 Prereq admission to Master of Accounting program. Estate and gift tax law.

543 Special Topics in Accounting 3 May be repeated for credit; cumulative maximum 6 hours. Prereq admission to Master of Accounting program. Critical topics in accounting including new developments.

544 Advanced Accounting Systems and Auditing 3 Prereq admission to Master of Accounting program. Advanced topics in accounting systems, auditing and controls.

550 Introduction to Financial and Managerial Accounting V 2-3 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 V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

BUSINESS LAW

**B Law**

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.

411 Managerial Law 3 Prereq B Law 210. Law of agency, partnerships, limited liability companies and corporations; and securities regulation.

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 (0-3) to 4 (0-12) 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.

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**Department of Entrepreneurship and Information Systems**

www.business.wsu.edu/informationsystems

Professors, S. Sarker, S. U. Sarker; Associate Professors, K. D. Joshi, G. Rose (Vancouver); Assistant Professors, P. Clay, M. Featherman, W. Wu (Vancouver). Instructors, J. Harris, C. Sears.

**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 DEGREE PROGRAM (120 HOURS)**

The entrepreneurship major has been developed for students interested in venture management, new venture startup and small business and the management of family firms.

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538 Seminar in Cost/Managerial Accounting
596 Doctoral Topics

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800 Doctoral Research, Dissertation, and/or Examination

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First Year

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1 For a total of 10 hours of Biological and Physical Sciences.
2 May not include courses from the business administration core, the set of required EntrP courses, or any 498 or 499 courses.
**MANAGEMENT INFORMATION SYSTEMS DEGREE PROGRAM**  
(120 HOURS)

Preparation for careers in every field of business, using information systems technology to solve business problems. Provides excellent training in systems design, development, networking, and support to meet the demands of this fast-growing occupational area.

**First Year**

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<td>Ecom$ 101 [S] or Ecom$ 102 [S] (GER) 3</td>
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<td>Acctg 231 3</td>
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**Third Year**

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<td>Engl 402 [W] or 403 [W] (GER) 3</td>
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<td>Pol S Elective 3</td>
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**Description of Courses**

**ENTREPRENEURSHIP**

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<tr>
<th>Course Name</th>
<th>Prereq</th>
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<tr>
<td>426 Entrepreneurial Finance</td>
<td>Acctg 231; Fin 325</td>
<td>Raising capital for new enterprises; venture capital, IPOs, debt financing, leasing and valuing start-up ventures.</td>
</tr>
<tr>
<td>485 [M] Topics in New Venture Business Planning</td>
<td>Fin 325; Mktg 360; MgtOp 301; MIS 375</td>
<td>Business competition to understand new venture creation utilizing technology breakthroughs, entrepreneurial business functions, and business plan development.</td>
</tr>
<tr>
<td>486 [M] Topics in New Venture Business Planning</td>
<td>Fin 325; Mktg 360; MgtOp 301; MIS 375</td>
<td>Business competition to understand new venture creation utilizing technology breakthroughs, entrepreneurial business functions, and business plan development.</td>
</tr>
<tr>
<td>489 Entrepreneurial Management</td>
<td>Ecom$ 101, 102, Fin 325, Mgmt 301, MIS 250, Mktg 360</td>
<td>Philosophy and nature of entrepreneurship for all business organizations: analytical, financial and interpersonal entrepreneurial skills.</td>
</tr>
<tr>
<td>492 Small Business Policy</td>
<td>Acctg 230; B Law 210; Fin 325; Mgmt 301, Mktg 360</td>
<td>Application of management theory and principles to small firms; applied consulting experience with operating businesses.</td>
</tr>
<tr>
<td>496 [M] Special Topics V 1-3</td>
<td>Fin 325</td>
<td>May be repeated for credit; cumulative maximum 6 hours. Course covers new or time-sensitive topics in entrepreneurship.</td>
</tr>
<tr>
<td>498 Entrepreneurship Internship V 2-15</td>
<td>MgtOp 301</td>
<td>May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government, or nonprofit organization. S, F grading.</td>
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<tr>
<td>499 Special Problems V 1-4</td>
<td>Fin 325</td>
<td>May be repeated for credit. Individualized study for students with special interests or needs. S, F grading.</td>
</tr>
<tr>
<td>501 Technology Entrepreneurship</td>
<td>Mgmt 491</td>
<td>Basic business concepts and processes applied to technology commercialization and venture creation.</td>
</tr>
<tr>
<td>588 Management of Innovation</td>
<td>Graduate standing. Same as MgtOp 588</td>
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<tr>
<td>600 Special Projects or Independent Study V 1</td>
<td>S (0-3) to 18 (0-54)</td>
<td>May be repeated for credit. S, F grading.</td>
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**MANAGEMENT INFORMATION SYSTEMS**

**MIS**

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<th>Course Name</th>
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<tr>
<td>171 Web Technologies and Innovation</td>
<td>MIS 250</td>
<td>3 Effects of web-based technologies and modern development environments on organizations.</td>
</tr>
<tr>
<td>250 Managing Information Technology</td>
<td>MIS 250</td>
<td>(2-2) Comprehensive overview of the role of management information systems in business, principles and application of MIS, and hands-on computer labs.</td>
</tr>
<tr>
<td>322 [M] Enterprise Business Process Analysis</td>
<td>MIS 250</td>
<td>3 Prereq MIS 250. The role of the systems analyst, and the application of systems analysis and design techniques in information systems development.</td>
</tr>
<tr>
<td>325 Enterprise Business Development</td>
<td>MIS 250</td>
<td>Basic principles of designing and developing enterprise-level business applications.</td>
</tr>
<tr>
<td>374 Information Technology Infrastructure and Security</td>
<td>MIS 250</td>
<td>3 Prereq MIS 250. Fundamentals of using information systems for business intelligence and decision support.</td>
</tr>
<tr>
<td>426 Emerging Technologies</td>
<td>MIS 250</td>
<td>May be repeated for credit; cumulative maximum 12 hours. Prereq MIS 250. Special and advanced topics in MIS.</td>
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<tr>
<td>441 Global E-Commerce</td>
<td>MIS 250</td>
<td>3 Prereq MIS 250. Capabilities of the Internet to support and enable global electronic commerce; effective design and implementation; managerial issues.</td>
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<tr>
<td>448 Global IS Project Management</td>
<td>MIS 250</td>
<td>Principles and techniques related to managing information systems projects in global business environments.</td>
</tr>
<tr>
<td>498 Management Information Systems Internship</td>
<td>MIS 250</td>
<td>V 2-15 May be repeated for credit. Cooperative educational internship with a business, government or nonprofit organization. S, F grading.</td>
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<tr>
<td>572 Database Management Systems</td>
<td>MIS 250</td>
<td>Prereq admission to MBA program. Database management, data modeling, system design and implementation; the application of DBMS technologies to organizational and business problems.</td>
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</table>
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 DEGREE PROGRAM (120 HOURS)

Preparation for careers in financial management, investment analysis, financial institutions management, financial services, real estate, or risk management and insurance.

First Year

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<td>B Law 210</td>
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<td>ComS 102 [C], 235 [C] or H D 205 [C] (GER)</td>
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Second Term

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<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>300-400-level Fin Elective</td>
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</tr>
<tr>
<td>Acctg 330</td>
<td>3</td>
</tr>
<tr>
<td>Fin 421</td>
<td>3</td>
</tr>
<tr>
<td>Fin 425 [M]</td>
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<td>Elective</td>
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Fourth Year

First Term

<table>
<thead>
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<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>300-400-level Fin Elective</td>
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<tr>
<td>Fin 427 [M] or Fin 437 [M]</td>
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<tr>
<td>Tier III Course (GER)</td>
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<tr>
<td>Elective</td>
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Second Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>300-400-level Fin Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

Description of Courses

FINANCE

Fin

223 Personal Finance 3 Consumer credit, financial institutions, investments, mutual funds, insurance, social security, home ownership, taxes, estate planning. Credit not applicable to business major requirements.

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.

421 Financial Institutions and Intermediation 3 Prereq Fin 325. Characteristics of financial markets and institutions; analysis of fixed-income securities; 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.

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. Financial problems of multinational businesses; international financial environment, long-term capital commitment to an international venture, financial techniques for firm operation, and international investment.

496 Special Topics 3 May be repeated for credit; cumulative maximum 6 hours. Prerequisite permission of instructor. Topics may include finance, real estate or risk management/insurance.

498 Finance Internship V 2 (0-6) to 15 (0-45) 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 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

500 Macroeconomic Theory I 3 Prereq EconS 302; one year of calculus. Same as EconS 500. Cooperative course taught by WSU, open to UI students (ECON S22).

501 Microeconomic Theory I 3 Prereq EconS 301 or 305; one year calculus. Same as EconS 501. Cooperative course taught by WSU, open to UI students (ECON S10).

502 Macroeconomic Theory III 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 3 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 510. 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.

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.

581 International Finance 3 Prereq Fin 325 or 525. Same as Bus 581.

593 Advanced Topics in Health, Education, Labor, and Demographic Economics V 1-6 May be repeated for credit; cumulative maximum 12 hours. Prereq EconS 500; EconS 501. Same as EconS 593.

594 Advanced Topics in Markets and Industrial Organization 3 Prereq EconS 500; EconS 501. Same as EconS 594.

595 Advanced Topics in Resource and Production Economics V 1-6 May be repeated for credit; cumulative maximum 12 hours. Prereq EconS 500; EconS 501. Same as EconS 595.

596 Advanced Topics in Financial Economics V 1-6 May be repeated for credit; cumulative maximum 12 hours. Prereq Fin 504 and 512 or permission of instructor. Topics may include financial theory and empirical methods as applied to financial management, investments, international finance, and markets/institutions.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

International Business Institute

www.business.wsu.edu/internationalbusiness

Todd Hall 570
509-335-2180


The International Business Institute (IBI) was established 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 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 DEGREE PROGRAM (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 reside outside the US 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

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>EconS 101 [S] or EconS 102 [S] (GER)</td>
<td>3</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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</tr>
<tr>
<td>Math 201</td>
<td>3</td>
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<tr>
<td>Science Elective [B,P,Q] (GER)</td>
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</tbody>
</table>

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 [L,G,K] (GER) | 3   |
| Math 202                       | 3     |

Second Year

<table>
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<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Acctg 230</td>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>MIS 250</td>
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<tr>
<td>Physical Sciences [P] (GER)²</td>
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<td>Pol S Elective</td>
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</table>

Second Term

| 300-400-level I Bus Electives [M]² | 3     |
| Foreign Language Elective¹        | 4     |
| I Bus 415                         | 3     |
| MgmtOp 215                       | 3     |
| Tier III Course [T] (GER)         | 3     |

Third Year

<table>
<thead>
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<th>First Term</th>
<th>Hours</th>
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<tr>
<td>300-400-level Electives</td>
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<tr>
<td>Fin 325</td>
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<tr>
<td>I Bus 380</td>
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<tr>
<td>Mgmt 301</td>
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<tr>
<td>Mktg 360</td>
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</table>

Second Term

| 300-400-level I Bus Electives [M]² | 3     |
| Foreign Language Elective¹        | 4     |
| I Bus 415                         | 3     |
| MgmtOp 240                       | 3     |

Fourth Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Study Abroad¹</td>
<td>12</td>
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<tr>
<td>Foreign Language Elective¹</td>
<td>1</td>
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</tbody>
</table>

Second Term

| 300-400-level EconS or I Bus Elective² | 3     |
| 300-400-level Electives                | 3     |
| 300-400-level I Bus Elective [M]²      | 3     |
| Engl 402 [W] or 403 [W] (GER)         | 3     |
| Mgmt 491 or Entrp 492                 | 3     |

3 For a total of 10 hours of Biological and Physical Sciences.
2 I Bus Electives are: I Bus 415, I Bus 416 [M], I Bus 435, MIS 441, I Bus 453 [M], Fin 481 [M], I Bus 482 [M], Entrp 492, I Bus 496, I Bus 498, I Bus 499; and EconS 327 or I Bus 470.
¹ May be taken as part of study abroad.
² Study Abroad coursework may also be taken during summer.

Description of Courses

INTERNATIONAL BUSINESS

1 Bus

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.

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.

435 International Tourism  3 International and domestic tourism; effects of tourism on the society.

453 [M] International Management 3 Cross-cultural implications of management theories and approaches; the role of national culture in management theory and practice.

470 International Trade and Finance 3 Prereq EconS 101; EconS 102. Same as EconS 327.

482 [M] International Marketing 3 Prereq 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 (0-6) to 15 (0-45) 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 (0-3) to 4 (0-12) 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.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

Department of Management

w w w. b u s i n e s s. w s u . e d u / m a n a g e m e n t o p e r a t i o n s

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 Degree Program (120 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

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>EconS 101 [S] or EconS 102 [S] (GER)</td>
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</tr>
<tr>
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<tr>
<td>Math 201</td>
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Second Year

<table>
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<tr>
<th>First Term</th>
<th>Hours</th>
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<tr>
<td>Acctg 230</td>
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<tr>
<td>B Law 210</td>
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</table>
Physical Sciences [P] (GER) 3 or 4
Pol S Elective 3
Soc or Psych [S] (GER) 3

Second Term Hours
Acctg 231 3
ComSt 102 [C], 235 [C] or H D 205 [C] (GER) 3
Intercultural Studies [I,G,K] (GER) 3
MgtOp 215 4
Elective 3
Complete Writing Portfolio

Third Year

First Term Hours
Fin 325 3
Mgmt 301 3
MgtOp 340 3
Mktg 360 3
Science Elective [B,P,Q] (GER) 1

Second Term Hours
Mgmt 401 [M] 3
MgtOp Track Electives 2 6
Tier III [T] Course (GER) 3
Elective 3

Fourth Year

First Term Hours
300-400-level Business/EconS Elective 3
Engl 402 [W] or 403 [W] (GER) 3
MgtOp Track Electives 2 3
Electives 6

Second Term Hours
300-400-level Business/EconS Elective 3
Mgt 491 or Entrep 492 3
MgtOp Track Elective 2 3
Electives 5

For a total of 10 hours of Biological and Physical Sciences.


3 May not include courses in the business administration core, the set of required Mgmt/ MgtOp courses, or any 498 or 499 courses.

301 (MgtOp) Principles of Management and Organization 3 Principles of management and administration aimed at improving effectiveness of all types of organizations. Credit not allowed for MGMT 101 if credit already earned in MGMT 301.

315 (MgtOp) [S,D] Women in Management and Leadership 3 Same as W St 315.

401 (MgtOp) [M] Leadership Skills for Managers 3 Prereq Mgmt 301. Leadership, motivation, team building, group dynamics, interpersonal and group conflict, and job design.


455 (MgtOp) [M] Staffing 3 Prereq MGMT 450 or c//. Selection issues; methods of forecasting, planning, recruitment, selection; analysis of psychometric properties of tests; techniques for assessing reliability and validity.

456 (MgtOp) Compensation Administration 3 Prereq MGMT 450 or c//. Theoretical, research, and applied issues related to the compensation of employees.

483 (MgtOp) [M] Macro Organization Behavior 3 Prereq MGMT 301. Organization level analysis of power, politics, and conflict; organizational communication, change, technology, structure, and environment; implications of organizational culture.

485 (MgtOp) Negotiation Skills 3 Bargaining skills across a broad range of business settings: experiential work.

487 (MgtOp) Business Ethics 3 Prereq MGMT 301. The nature and sources of ethical conflicts and dilemmas individuals and organizations confront in the business context.


496 Seminar 3 May be repeated for credit.

498 Internship V 2 (0-6) to 15 (0-45) 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 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

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.

519 Applied Multivariate Analysis 3 Prereq MgtOp 591 or Stat 443. Principal components, factor analysis, discriminant 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.
800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Department of Marketing

www.business.wsu.edu/marketing
Todd 367
509-335-0924

Professor and Department Chair, D. Muchling; Professors, J. Cote, J. Johnson, E. Spangenberg, D. Sprott, P. Taneja; Associate Professor, I. Joeremay; Assistant Professors, B. John Mariadoss, I. Karkkas, A. SaVinhos; 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 DEGREE PROGRAM (120 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 110 [A] (GER) 3
Mktg 360 3
Science Elective [B,P,Q] (GER) 1 3

Second Term

Biological Sciences [B] (GER) 2 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

First Year

Acctg 220 3
Arts & Humanities [H,G] (GER) 3
Chem 250 3
Physical Sciences [P] (GER) 1 3
Pol S Elective 3

Second Term

Acctg 231 3
Law 210 3
ComSt 102 [C], 235 [C] or H D 205 [C] (GER) 3
Mktg 215 4
Soc or Psych [S] (GER) 3
Complete Writing Portfolio
468 Public Policy and Marketing 3 Prereq Mkgt 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 Mkgt 360. Retailing system; organization, merchandising models, pricing, promotion, location, and control procedures; management decision processes.

477 Promotion Management 3 Prereq Mkgt 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 Mkgt 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 Mkgt 360. Case and project-based course exploring business-to-business marketing in traditional and electronic environments.

487 Independent Research 3 Prereq Mkgt 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 Mkgt 360; senior class standing. Analysis of marketing policy; approaches to solutions of marketing problems.

496 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq Mkgt 360. May be repeated for credit; cumulative maximum 6 hours.

498 Marketing Internship V 2 (0-6) to 15 (0-45) May be repeated for credit; cumulative maximum 15 hours. Prereq Mkgt 360. Cooperative educational internship with a business, government or nonprofit organization. S, F grading.

499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. Prereq Mkgt 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.

507 Consumer Behavior 3 Prereq admission to Online MBA Program. Marketing structure and behavior from economic and behavioral perspectives; social evaluation and behavioral implications of marketing strategy.

561 Technology and New Product Marketing 3 Prereq Mkgt 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.

577 Promotional Management 3 Prereq admission to Online MBA Program. Integrated promotion into the marketing plan; methods, organization, communications, media selection, and campaigns.

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.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Gene and Linda Voiland School of Chemical Engineering and Bioengineering

www.chebe.wsu.edu Dana 118 509-335-4332

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 Chemical Engineering majors is restricted at the junior level.

Chemical Engineering 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 students are uniquely prepared to participate in the entrepreneurial application of new technologies to advance health.

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 suitable for professional decision-making. 10) Communication: Students demonstrate ability to communicate effectively in written and oral forms to interdisciplinary audiences.

Bioengineering Certification
Specific requirements for certification in bioengineering can be obtained from the school although eligibility usually occurs at the middle of the junior year. Criteria for certification include overall gpa, grades earned in biology, chemistry, mathematics and physical science courses, and performance in the Ch E 201 and BE 210 courses. A certified student earning a gpa of less than 2.0 for any two semesters is subject to decertification.

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. The curriculums in Bioengineering and in Chemical Engineering are accredited by ABET.

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.

**Criteria for Certification – Bioengineering Program**
1) In September of each year, the faculty of the School of Chemical Engineering and Bioengineering will establish the total number of students (June and January) to be certified into the bioengineering program.

2) Each student will be considered for certification during the semester after she/he has completed all of the following courses: Math 171, Math 172, Chem 105, Chem 106, Biol 107, Phys 201, ChE 201, B E 210

3) To be certified, each student must meet the following minimum standards:
   a. 2.0 cumulative GPA
   b. A “C” grade or better in each of the courses listed in 2) above

4) Certification decisions will be made at the end of Fall and Spring semesters, and those being certified at the end of Spring semester will be notified by June 1, while those being certified at the end of Fall semester will be notified by January 15.

5) If the number of students seeking certification exceeds the program capacity, as determined in 1) above, additional criteria will be used to select those who are certified. Those criteria include:
   (a) average gpa received in the courses listed in 2) above;
   (b) average gpa earned in all the engineering/math/science courses which have already been completed;
   and (c) the gpa earned during the previous semester.

6) Students who have completed all the courses listed in 2) above, but who are not certified will be notified of the decision according to the time table described in 4) above. Such students who are not certified may appeal the decision. This appeal should describe any special circumstances which should be considered. A faculty committee will consider the appeal, the special circumstances described, and trends in the grades (e.g. trends in grades and/or withdrawals, typical course load attempted and typical course load completed) and make a final decision regarding certification. The appeal must be submitted within 2 weeks of the notification described in 4) above. The appeal will be considered and a decision made by July 1 and February 15.

7) Students who are deficient under the University’s Educational Policies and Procedures are subject to decertification.
   a. The first semester that a student is deficient, she/he must apply for recertification, stating changes that will be made to ensure success and explaining extenuating circumstances, if any, that hindered success. The student must provide sufficient information so that a reasonable individual will assume that the student will likely be able to successfully complete the program.
   b. The second time that a student is deficient, she/he may apply to be recertified. However, such recertification will be granted only under rare, extenuating conditions.

**First Year**

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 105 [P] (GER)</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
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<td>Math 171 [N] (GER)</td>
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**Second Term**

<table>
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<tbody>
<tr>
<td>B E 140</td>
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<td>Math 172</td>
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**Second Year**

<table>
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<tbody>
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<td>B E 205</td>
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<tr>
<td>Ch E 201</td>
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### BIOENGINEERING, PRE-MED OPTION (131 HOURS)

#### First Year

<table>
<thead>
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<th>Course Code</th>
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<td>Math 105 [P] (GER)</td>
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<tr>
<td>English 101 [W] (GER)</td>
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<tr>
<td>English 120</td>
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<tr>
<td>Math 171 [N] (GER)</td>
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#### Second Term

<table>
<thead>
<tr>
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<tbody>
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<td>Chemistry 106 [P] (GER)</td>
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<td>GenEd 111 [A] (GER)</td>
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</tr>
<tr>
<td>Math 172</td>
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</table>

#### Second Year

##### First Term

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
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<tr>
<td>Chemistry 105, 106, 107 [B] (GER)</td>
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<td>Math 201</td>
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<td>Math 202 [P] (GER)</td>
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##### Second Term

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<td>Chemistry 106 [P] (GER)</td>
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<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 172</td>
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</tr>
</tbody>
</table>

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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.

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### CHEMICAL ENGINEERING - GENERAL (131 HOURS)

#### Criteria for Certification – Chemical Engineering Program

1. In September of each year, the faculty of the School of Chemical Engineering and Bioengineering will establish the total number of students (June and January) to be certified into the chemical engineering program.
2. Each student will be considered for certification during the semester after she/he has completed all of the following courses: Math 171, Math 172, Math 273, Chem 105, Chem 106, Chem 345, Phys 201, Ch E 201.
3. To be certified, each student must meet the following minimum standards:
   a. 2.0 cumulative GPA
   b. A “C+” grade or better in each of the courses listed in 2) above

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### Fourth Year

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>Biology 106 or 107 [B] (GER)</td>
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<tr>
<td>Chemistry 106 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 172</td>
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</tr>
</tbody>
</table>
Second Year

**First Term**
- Arts & Humanities [H,G] (GER) 3
- Ch E 201 3
- Chem 345 4
- Math 273 2
- Phys 201 [P] (GER) 4

**Second Term**
- Ch E 211 3
- Chem 346 or MBioS 303 3 or 4
- Econ/S 101 [S] or 102 [S] (GER) 3
- Math 315 3
- Phys 202 [P] (GER) 4
- Complete Writing Portfolio

Third Year

**First Term**
- Ch E 301 3
- Ch E 310 3
- Ch E 398 1
- Chem 331 3
- MBioS 301, 303, or 305 4
- MSE 302 3

**Second Term**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Ch E 332 2
- Ch E 334 2
- Ch E 201 3
- Chem 345 4
- Math 273 2
- Phil 365 3
- Phys 201 [P] (GER) 4

**Third Year**
- Ch E 432 3
- Ch E 441 3
- Ch E 450 3
- Ch E 475 3
- Ch E 498 1
- Engl 402 [W] (GER) 3

**Fourth Year**
- Ch E 433 [M] 2
- Ch E 451 [M] 3
- Ch E 495 1
- Ch E Elective 3
- Tier III Course [T] (GER) 3
- Complete Writing Portfolio

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**First Year**

**First Term**
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Intercultural Studies [I,G,K] (GER) 3
- Math 171 [N] (GER) 4

**Second Term**
- Biol 106 [B] or 107 [B] (GER) 4
- Ch E 110 2
- Chem 106 [P] (GER) 4
- GenEd 111 [A] (GER) 3
- Math 172 4

**First Term**
- Arts & Humanities [H,G] (GER) 3
- Ch E 201 3
- Chem 345 4
- Math 273 2
- Phil 365 3
- Phys 201 [P] (GER) 4

**Second Term**
- Ch E 211 3
- Chem 346 3
- Econ/S 101 [S] or 102 [S] (GER) 3
- Math 315 3
- Phys 202 [P] (GER) 4
- Complete Writing Portfolio

**Third Year**

**First Term**
- Ch E 301 3
- Ch E 310 3
- Ch E 398 1
- Chem 331 3
- MBioS 301 or 305 4
- MSE 302 3

**Second Term**
- Ch E 321 3
- Ch E 332 2
- Ch E 334 2
- Ch E 398 1
- Chem 333 1
- E E 304 2
- Math 423 3
- MBioS 303 4

**Fourth Year**

**First Term**
- Ch E 432 [M] 3
- Ch E 441 3
- Ch E 450 3

**Description of Courses**

**BIOENGINEERING**

**B E**

140 Introduction to Bioengineering 1 Seminar on current topics and issues in bioengineering; career options in bioengineering. S, F grading.

205 Bioengineering Professional Preparation and Ethics 1 Professional preparation for careers in bioengineering; ethical, social, and professional issues in bioengineering. S, F grading.

210 Bioengineering Analysis 2 (1-3) Prereq Ch E 201; Math 172, 220 or permission of instructor. Analytical problem solving, modeling and computer methods for bioengineering applications.

321 Mechanics of Biological Materials 3 Prereq C E 211; certified bioengineering major. Mechanical behavior of biological and engineering materials; relationships between external loads and internal stresses and strains within a structure.

322 [M] Mechanics of Biological Materials Lab 1 (0-3) Prereq C E 211; Math 370 or 423 or c//; certified bioengineering major. Laboratory experiments focused on mechanics of biological and engineering materials; experimental design and statistical analysis of data; scientific writing.

330 Bioinstrumentation 3 (2-3) Prereq E E 261; certified B E major. Principles of instrumentation applicable to bioengineering systems; experimental design for measurement systems.

340 Unified Systems Bioengineering I 4 (3-3) Prereq E E 261 or c//; Math 315; certified B E major or instructor's permission. Foundation for dynamic modeling and design of physiological systems; part one of two-semester course.

350 Introduction to Cellular Bioengineering 3 Prereq Biol 107; Chem 345; Math 315; Phys 202; MBioS 305 or c//; certified B E major. Integrating cellular biology and engineering science by applying quantitative engineering principles for development of cellular-based materials, diagnostic devices and sensor designs.

410 [M] Bioengineering Capstone Project I 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.
411 Bioengineering Capstone Project II 3 (2-2) 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.

425 Biomechanics 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.

440 Unified Systems Bioengineering II 3 (3-3) Prereq B E 340. Continuation of B E 340; emphasis on feedback control system analysis and design, with examples from physiological systems.

481 Advanced Topics in Bioengineering V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq junior status; permission of instructor. Advanced topics in bioengineering.

498 Internship in Bioengineering V I (0-0-3) to 3 (0-9) 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.

499 Special Problems in Bioengineering V I-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.

525 Biomechanics 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.

541 Systems Bioengineering 3 Physiological systems emphasizing the cardiovascular, pulmonary, renal, endocrine, musculoskeletal, nervous and sensory systems.

550 Cellular Bioengineering 3 Cellular biology integrated with engineering science; cellular phenomena from an engineering perspective; quantitative engineering principles for cellular-based materials, diagnostic devise and sensor designs.

CHEMICAL ENGINEERING

Only certified chemical engineering majors may enroll in upper-division (300-400-level) Ch E courses. Exemptions must be made with permission of the director of the school.

Ch E

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.

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 stage-wise 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. Prereq Ch E 211 or Ch E major. Design and analysis of experiments; safety; experiments in heat and mass transfer; separations, other unit operations, kinetics, control; technical reports and presentations.

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) May be repeated for credit; cumulative maximum 4 hours. Prereq Ch E 432. Laboratory experiments in heat and mass transfer; separations, other unit operations, kinetics, control; design calculations; technical reports and presentations.

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 or senior standing in engineering or physical sciences; Math 315 or equivalent. 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.

481 Special Topics in Chemical Engineering V 1-3 Interfacial phenomena, high temperature material processing, integrated circuit manufacturing, in situ destruction of hazardous waste.

495 Chemical Engineering Internship 2 (0-6) 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.

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 (0-3) to 4 (0-12) 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).

527 Macroscopic Thermodynamics 3 Same as M E 527. Cooperative course taught jointly by WSU and UI (CHE 524).

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 3 Mathematical analysis of chemical engineering operations and processes; mathematical modeling and computer application.

549 Biochemical Conversion Laboratory 2 (1-3) Prereq graduate standing in engineering. Analytical techniques in biomass characterization; bioproduct/biofuel production from renewable biomass including biochemical processes.

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).

574 Protein Biotechnology 3 Same as MBioS 574.
Chemical Engineering and Bioengineering

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; Ch E 310; graduate standing. Chemical and physical nature of the interface including the molecular basis for interfacial forces and resulting macroscopic phenomena.

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 V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Department of Chemistry

www.chemistry.wsu.edu
Fulmer 305
509-335-5585

Professor and Department Chair, K. Hipp; Professors, C. Berkman, S. Clark, P. Garner, H. Hill, J. Hurst, J. Jones, C. Kang, A. Li, D. Matteson, U. Mazur, J. McHale, K. Nash, K. Peterson, R. Ronald, J. Satterlee, J. Schenk, S. Wherland; Associate Professors, P. Benny, J. Brozik, A. Clark, M. Xian; Assistant Professor, N. Wall; Clinical Associate Professors, G. Crouch, J. Lessmann, L. Sauder; Clinical Assistant Professors, X. Tang; Adjunct Faculty, J. Ettorre, L. Wang; Scientist, B. Siemens; Instructor, M. Finnegan; WSUTC Coordinator, K. Grant.

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 by both experimental and theoretical means. It includes important phenomena such as energy transfer in light absorbing and emitting materials and it extends to the synthesis of new and improved materials.
- Organic chemistry deals with the many compounds of carbon and how these compounds interact in biological systems. It includes the study of medicinal, bioorganic, 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. A student beginning undergraduate work will begin with Chem 105. Student without high school chemistry will begin their study with Chem 101 prior to taking Chem 105. 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 Department of Chemistry provides major parts of the course work leading to degrees in the Department of Biochemistry and Biophysics and the Program in Materials Science. Students whose interests span chemistry and biology or chemistry and physics should see the section on the appropriate program in this catalog.

Certification Requirements
A student may certify as a chemistry major after completing 30 credit hours, including Chem 105 and 106 (or 116), each with a grade of C or better and Math 171.

LAB FEES
Charges for expendable laboratory supplies and computing are made in each laboratory course.

Chemistry Options
After the beginning of the freshman year, a student interested in majoring in chemistry should consult with chemistry advisors to arrange a schedule which will permit completion of required courses in proper sequence. The Department of Chemistry offers two BS degree options depending on the career goals of the student. These options are professional chemistry and materials chemistry. Both of these options leads to a degree for which students will be certified to the American Chemical Society and prepared for entry into the workforce or to pursue a graduate degree. Regardless of which option is chosen, a grade of C or better is required in all chemistry courses to fulfill requirements for the chemistry degree.

Schedules of Studies
Students must complete one American Diversity [D] course or 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 - MATERIALS OPTION (122 HOURS)

The requirements for all chemistry options are the same through the first semester of the junior year.

First Year

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<th>Courses</th>
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<td>Chem 105 [P] (GER) or 115 1</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>Math 171 [N] (GER)</td>
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<tr>
<td>Second Term</td>
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<td>Biol 106 [B] (GER)</td>
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<td>Math 172</td>
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Second Year

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<th>Term</th>
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<tr>
<td>First Term</td>
<td>3</td>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td></td>
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<td>Phys 201 [P] (GER)</td>
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Third Year

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<th>Hours</th>
<th>Courses</th>
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<tr>
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<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K] (GER)</td>
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<td>Cpt $ 153, 203, or 251 1</td>
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Fourth Year

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<tr>
<th>Term</th>
<th>Hours</th>
<th>Courses</th>
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</table>
| First Term    | 3     | Arts & Humanities [H,G] or 
|               |       | Social Sciences [S,K] (GER) |
|               |       | Chem 334 [M]         |
|               |       | Chem 401             |
|               |       | Chem 426             |
|               |       | Chem 499             |
|               |       | Elective             |
| Second Term   | 3     | Arts & Humanities [H,G], Intercultural Studies [I,G,K] (GER) |
|               |       | Chem 410 [M]         |
|               |       | Chem 480             |

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.

CHEMISTRY - PROFESSIONAL OPTION (120 HOURS)

The requirements for all chemistry options are the same through the first semester of the junior year.

First Year

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Second Year

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Third Year

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Fourth Year

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|               |       | Social Sciences [S,K] (GER) |
|               |       | Chem 334 [M]         |
|               |       | Chem 401             |
|               |       | Chem 426             |
|               |       | Chem 499             |
|               |       | Elective             |
| Second Term   | 3     | Arts & Humanities [H,G], Intercultural Studies [I,G,K] (GER) |
|               |       | Chem 410 [M]         |
|               |       | Chem 480             |

1 Highly qualified students are encouraged to take Chem 116 in place of Chem 106. Students who have taken Chem 101 must take Chem 105 and 106, or 102 and 106.
2 Electives include: Chem 415, 416, 421, 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/ RP 101, 150, 406, 445, Biol 372; Phil 370; BSysE 351; microbiology courses.

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, 350. 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 303 and other MBioS courses may be substituted with approval.

Description of Courses

CHEMISTRY

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.
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.

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.

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 equilibrium, electrochem, thermodynamics, kinetics. Laboratory interfaced with computers. Credit not granted for both Chem 116 and 106.

191 Independent Study in Modern Chemistry V 1-3 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. Rec c/ in Chem 222. Theories of quantitative chemical analysis; statistical evaluation of data; chemical equilibrium; 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.

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. Lecture-only component of Chem 348. Advanced concepts in organic chemistry including mechanisms and multistep-synthesis. Credit not granted for both Chem 346 and 348.

347 Organic Qualitative Analysis Laboratory 3 (1-6) Prereq Chem 345 with a grade of C or better. Isolation, purification and identification of unknown compounds; for chemistry and biochemistry majors.

348 Organic Chemistry II and Problem Solving 4 (3-2) Prereq Chem 345 with a grade of C or better. Advanced concepts in organic chemistry including mechanisms and multistep-synthesis; problem analysis and critical thinking development in organic chemistry. Credit not granted for both Chem 346 and 348.


396 Undergraduate Seminar 1 Rec BC/BO 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 or 348, 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.

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 or c/. Laboratory experience in modern analytical methods.
Advanced Physical Chemistry I 3 Prereq Chem 331. Rec Chem 332 Classical physical chemistry including basic thermodynamics and kinetics; an introductory discussion of surface chemistry and electrochemistry.


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.

Quantum Chemistry 3 Prereq Chem 532 or equivalent. Rec Chem 332 or 531. Quantum mechanics applied to chemical problems: states of atoms and molecules, transitions and spectra, ladder operators and many electron methods.

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).

Physical Organic Chemistry 3 Rec Chem 542. The major classes of organic reaction mechanisms and their significance; kinetics and introductory theory. Cooperative course taught by WSU, open to UI students (CHEM 540).

Advanced Organic Chemistry 3 Rec Chem 348 or equiv. Synthesis of organic compounds; recent developments from current literature.

Bioorganic Chemistry 3 Rec Chem 542. Chemistry of biological systems, medicinal chemistry, protein chemistry, enzyme mechanisms and inhibitors.

Advanced Topics in Organic Chemistry V 1-3 May be repeated for credit. Rec Chem 542. Current research in organic chemistry. Cooperative course taught by WSU, open to UI students (CHEM 504).

Synthetic Organic Chemistry 3 Rec Chem 542. Modern synthetic methods and strategies; detailed reaction mechanisms, reaction scope and issues in catalysis will be discussed. Cooperative course taught by WSU, open to UI students (CHEM 545).

Spectroscopic Identification of Organic Compounds 3 Structural interpretation of mass spectrometry and IR, UV-VIS and NMR spectrometry of small molecule organic compounds.

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.

Teaching Chemistry 1 Teaching chemistry; workshops for new graduate teaching assistants in chemistry focusing on tutorials and labs.

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.

Environmental Chemistry I 3 Prereq graduate standing. Chemistry of natural and pollutant species and their reactions in the atmospheric environment.

Introduction to Research Topics 1 Presentation and description of research areas and projects of current interest to faculty. S, F grading.

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.

Seminar in Physical Chemistry 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.

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.

Special Projects or Independent Study V 1-3 to 18 (0-54) May be repeated for credit. S, F grading.

Master's Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Master's Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Civil and Environmental Engineering

www.ece.wsu.edu
Sloan 101
509-335-2576

Professor and Department Chair, D. I. McLean; Professors, M. E. Barber, D. A. Bender, C. S. Claiborn, W. F. Cofer, J. D. Dolan, M. A. Hossain, B. K. Lamb, G. H. Mount, B. Manganthun, P. Qiao, J. R. Watts, M. P. Wolcott, D. R. Yonge; Associate Professors, M. Beutel, L. Haselbach, T. Jobson, H. Liu, D. G. Pollock, Jr., J. Zhang; Assistant Professors, J. Adam, S. Brown, S. Shen, T. VanReken, H. Wen, V. Yadama; Clinical Assistant Professors, K. Olsen, C. Poor.

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 and 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 http://www.ce.wsu.edu/laptop_requirements.htm.

**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 DEGREE PROGRAM (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.

Certification Requirements:

- 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 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, as well as all math, science and engineering courses taken to date, will be certified into the department until the carrying capacity is reached.

**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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<tr>
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<tr>
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**Second Term**

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<td>Biol 102 [B] or MBioS 101 [B] (GER)</td>
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**Third Year**

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**Fourth Year**

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**Second Term**

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<td>C E Elective</td>
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| Tier III Humanities or Social Science Course [T] (GER) | 3 |

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 such that at least one designated as DES should be chosen from two different areas (environmental, geotechnical, hydraulics, structural, and transportation/pavement).
4. Course to be taken in final semester.

**ENVIRONMENTAL EMPHASIS (ALTERNATE SENIOR YEAR) (32 HOURS)**

The alternate senior year schedule shown below is offered to those students interested in studying with an environmental 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>
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<tr>
<th>First Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>C E 402</td>
<td>3</td>
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<td>C E 404</td>
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<td>C E 415</td>
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<td>C E 418</td>
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<td>C E 463</td>
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<td>C E 480 [M]</td>
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**Second Term**

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<tr>
<th>Hours</th>
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<tr>
<td>C E 401</td>
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<tr>
<td>C E 403 or 419</td>
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<tr>
<td>C E 442</td>
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<tr>
<td>C E 465 [M]</td>
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<tr>
<td>C E 466</td>
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</tbody>
</table>

| Tier III [T] Humanities or Social Sciences Course (GER) | 3 |

1. C E 465 must be taken in the final semester.

**INFRASTRUCTURE ENGINEERING EMPHASIS (ALTERNATE SENIOR YEAR)**

The alternate senior year schedule shown below is offered to those students interested in studying with 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

**First Term**
- C E 430: 3
- C E 433: 3
- C E 463: 3
- C E 480 [M]: 1
- C E 465 [M]: 3
- C E Elective: 3
- Tier III Humanities or Social Sciences Course [T] (GER): 3

**Second Term**
- C E 431 or 434: 3
- C E 465 [M]: 3
- C E 466: 3
- C E Elective: 3
- Tier III Humanities or Social Sciences Course [T] (GER): 3

1. C E 465 must be taken in the final semester.

**STRUCTURAL ENGINEERING (ALTERNATE SENIOR YEAR)**

The alternate senior year schedule shown below is offered to those students interested in studying with a structural 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

**First Term**
- C E 430: 3
- C E 433: 3
- C E 463: 3
- C E 480 [M]: 1
- C E Elective: 3
- Tier III Humanities or Social Sciences Course [T] (GER): 3

**Second Term**
- C E 414: 3
- C E 431 or 434: 3
- C E 435: 3
- C E 466: 3
- Tier III Humanities or Social Sciences Course [T] (GER): 3

1. C E 465 must be taken in the final semester.

**WATER RESOURCES EMPHASIS (ALTERNATE SENIOR YEAR)**

The alternate senior year schedule shown below is offered to those students interested in studying with a water resources 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

**First Term**
- C E 404: 3
- C E 451: 3
- C E 456: 3
- C E 463: 3
- C E 475: 3
- C E 480 [M]: 1

**Second Term**
- C E 416: 3
- C E 460: 3
- C E 465 [M]: 3
- C E 466: 1
- C E Elective: 3
- Tier III Humanities or Social Sciences Course [T] (GER): 3

1. C E 465 must be taken in the final semester.

**Description of Courses**

**CIVIL ENGINEERING**

**C E**

211 Statics 3 Prereq Math 172 or c/; Phys 201 or c/. Engineering mechanics concepts; force systems; static equilibrium; centroids of gravity; shear and moment diagrams; friction; moments of inertia. Cooperative course taught jointly with 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 with WSU and UI (ENGR 350).

302 Introduction to Surveying 2 (1-3) Prereq Math 171, certified civil engineering or construction management major. Surveying data collection, analysis and application; measuring distances and angles using total stations and global positioning systems; analysis of errors in measurements.

303 Civil Engineering Computer Applications 2 (1-3) Prereq Cst M 254; certified civil engineering major. Advanced civil engineering computer applications including Geographical Information Systems, CIVIL3D and Excel.

315 Fluid Mechanics 3 Prereq M 212; certified major in C E or instructor approval. Fluid statics, laminar and turbulent flow, similitude, pipe flow, boundary layer, lift and drag and measurement techniques.

317 [M] Geotechnical Engineering I 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, 370 or c/; C E 302 or c/; certified major in C E or instructor permission. Road-vehicle interaction, geometric design, traffic flow and queuing theory, highway capacity and level of service, and introduction to pavement design and materials.

330 Introduction to Structural Engineering 3 Prereq CE 215 with a C or better; certified major in C E 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 Chem 105; rec MBioS 101. 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 C E 315 with a C or better; certified major in C E 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; Math 360 or Math 370 or c/; senior standing; certified major in C E or instructor permission. Basic properties and mix designs of aggregates, asphalt, concrete and recycled materials; quality assurance, quality control.

401 Climate Change Science and Engineering 3 Prereq Chem 105; Math 172; Phys 201. Engineering solutions for climate change problems; basic science of climate change, engineering for mitigation and adaptation, and climate change policy.

402 Applied Meteorology 3 Prereq Math 172; Phys 201. Atmospheric physical behavior across spatial scales linking concepts of meteorological phenomena to engineering design principles. Credit not granted for both C E 402 and 502.

403 Air Quality Management 3 Prereq C E 402; Chem 105. Air pollution from the perspective of an environmental manager; regulatory framework, management strategies, monitoring, modeling tools, and control technologies. Credit not granted for both C E 403 and 503.

404 Sustainability Engineering I 3 Prereq senior standing in the College of Engineering and Architecture. Low impact development (stormwater), sustainable site selection, alternative transportation, heat island effect, light pollution and water use/efficiency. Credit not granted for both C E 404 and 504.

405 Sustainability Engineering II 3 Prereq senior standing in the College of Engineering and Architecture. Topics focusing on energy efficiency/use, regional and global climate/air issues, use/reuse of various material and resources and indoor environmental quality. Credit not granted for both C E 405 and 505.

414 Structural Design Laboratory 3 (2-3) Prereq C E 330; Math 360 or Math 370 or c/; certified major in civil engineering 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; Math 360 or Math 370 or c/; certified major in C E 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; Math 360 or Math 370 or c/; certified major in C E or instructor permission. Experiments related to fluid flow principles and their application to hydraulic engineering.

418 Hazardous Waste Engineering V 3-4 Prereq C E 341 with a C or better; certified major in C E or instructor permission. Hazardous waste properties, chemodynamics, and health effects; introduction to risk assessment and hazardous waste remediation. Credit not granted for both C E 418 and 518. Cooperative course taught by WSU, open to UI students (C E 435).

419 Hazardous Waste Treatment 3 Prereq C E 418 with a C or better; certified major in C E 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 C E 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 (C E 567).

430 Analysis of Indeterminate Structures 3 Prereq C E 330 with a C or better; Math 220; E E 221; certified major in C E 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 C E 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 C E 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 C E 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 (C E 442).

435 Foundations 3 Prereq C E 317 with a C or better; certified major in C E or instructor permission. Site investigation; bearing capacity, settlement and design of shallow foundations, piles and piers; design of retaining walls.

436 Design of Timber Structures 3 Prereq C E 330 with a C or better; certified major in C E 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 (C E 443).

437 Structural Composites Design 3 Prereq C E 330. Behavior, analysis and design of fiber-reinforced plastic composite structures; micro, 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 C E 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 C E or instructor permission. Steady, non-uniform flow; controls and transitions in fixed-bed channels. Credit not granted for both C E 451 and 551.

456 Sustainable Development in Water Resources 3 Prereq C E or better in C E 351; certified civil engineering major. Sources of freshwater in Pacific Northwest; water demands; climate change impacts on water availability; approaches for developing sustainable water yield.

460 Advanced Hydrology 3 Prereq C E 351 with a C or better; certified major in C E 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.

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 C E; taken final semester. 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 317; Econ 101 or 102; 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.

474 Traffic Systems Design 3 (2-3) Prereq C E 322 or instructor permission. Analysis and design of network traffic systems, system evaluation using computer optimization and simulation; development and testing of alternative system design. Two lectures and one 3-hour lab a week; field data collection and field site visits. Cooperative course taught by UI, open to WSU students (CE 474).

475 Groundwater 3 (2-3) Prereq BSysE 351, C E 317 or Geol 315; and Math 140 or 172 or c/; Same as Geol 475.

480 [M] Ethics and Professionalism 1 Prereq senior status; certified major in C E or instructor permission. Professional aspects of civil engineering.

495 Engineering Internship V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 4 hours. By interview only. Placement in a professional, governmental, or industrial situation for specialized or general experience. S, F grading.

498 Special Topics in Civil Engineering V 1-4 May be repeated for credit; cumulative maximum 6 hours. Contemporary topics in civil engineering.

499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

501 Advanced Topics in Transportation Engineering V 2-4 May be repeated for credit; cumulative maximum 9 hours. Prereq C E 322; statistics course. Special topics course in transportation engineering. Cooperative course taught jointly by WSU and UI (CE 571).

502 Applied Meteorology 3 Prereq Math 172; Phys 201. Graduate-level counterpart of C E 402; additional requirements. Credit not granted for both C E 402 and 502.

503 Air Quality Management 3 Graduate-level counterpart of C E 403; additional requirements. Credit not granted for both C E 403 and 503.

504 Sustainability Engineering I 3 Graduate-level counterpart of C E 404; additional requirements. Credit not granted for both C E 404 and 504.

505 Sustainability Engineering II 3 Graduate-level counterpart of C E 405; additional requirements. Credit not granted for both C E 405 and 505.

507 Seepage and Slope Stability 3 Principles governing the flow of water through soils; mechanics of stability analysis of slopes, landslides, and embankments for soil and rock masses; probabilistic analyses; stabilization methods. (Alt/even yrs, Spring only). Cooperative course taught by UI, open to WSU students (CE 563).
509 Numerical Modeling of Geomaterials 3 Prereq graduate student in geotechnical engineering or related field, or by interview. Modeling of the response of geomaterials to changes in imposed stresses or strains under both static and dynamic conditions.

510 Advanced Geomaterial Characterization 3 Advanced mechanics of geomaterials; compressibility, concept of stress and strain; shear strength, stress/strain and time-dependent behavior; dynamic properties.

511 Advanced Topics in Geotechnical Engineering V 2-4 May be repeated for credit; cumulative maximum 9 hours. Prereq C E 317. Soil dynamics, theoretical soil mechanics, numerical methods in soil mechanics, and geohydrology, engineering geology, cold regions geotechnology. Cooperative course taught jointly by WSU and UI (CE 569).

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. Cooperative course taught jointly by WSU and UI (CE 510).

515 Environmental Measurements 3 (1-6) Prereq C E 341; Engl 402; Math 360 or Math 370 or c//. Graduate-level counterpart of C E 415: additional requirements. Credit not granted for both C E 415 and 515.

517 Mechanics 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. Cooperative course taught jointly by WSU and UI (CE 521).

518 Hazardous Waste Engineering V 3-4 Prereq graduate standing. Graduate-level counterpart of C E 418; additional requirements. Credit not granted for both C E 418 and 518.

519 Hazardous Waste Treatment 3 Prereq C E 418. Graduate-level counterpart of C E 419; additional requirements. Credit not granted for both C E 419 and 519.

524 Geotechnical Earthquake Engineering 3 Faulting and seismicity; site response analysis; probabilistic seismic hazard assessment; influence of soil on ground shaking; response spectra; soil liquefaction; seismic earth pressures; seismic slope stability; earthquake resistant design. Cooperative course taught jointly by WSU and UI (CE 566).

525 Soil and Site Improvement 3 Prereq C E 317. Graduate-level counterpart of C E 425; additional requirements. Credit not granted for both C E 425 and 525. Cooperative course taught by WSU, open to UI students (CE 567).

527 Engineering Properties of Soils 3 Prereq C E 317. Physical properties, compressibility and consolidation, shear strength, compaction, saturated and unsaturated soils, laboratory and field methods of measurement, relations of physical and engineering properties, introduction to critical-state soil mechanics. Cooperative course taught by UI, open to WSU students (CE 561).

528 Advanced Foundation Engineering 3 Prereq C E 317. Interpretation of in-situ tests for foundation design parameters, bearing capacity and settlement of axially loaded piles, pile groups, and drilled shafts, pile dynamics, laterally loaded deep foundations, downdrag and uplift of deep foundations, foundation load and integrity testing methods and data interpretation, mat foundations. Cooperative course taught by UI, open to WSU students (CE 562).

530 Advanced Design of Steel Structures 3 Prereq C E 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 545).

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 Prereq C E 433. Composite design; slab design; limit state design; footings; retaining walls; deep beams; brackets and corbels; torsion; seismic design; shear walls. Cooperative course taught jointly by WSU and UI (CE 547).

534 Prestressed Concrete and Reinforced Masonry Design 3 Graduate-level counterpart of C E 434; additional requirements. Credit not granted for both C E 434 and 534. Cooperative course taught by WSU, open to UI students (CE 442).

535 Advanced Finite Elements 3 Prereq graduate standing. 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.

538 Earthquake Engineering 3 Prereq C E 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 Design of Timber Structures 3 Prereq CE 436. Engineering properties of wood materials; theory and design of wood composites, connections and load-sharing systems; performance criteria and durability.

540 Instrumental Analysis of Environmental Contaminants 3 (1-6) Prereq C E 415. Theory and methods of analysis of water and water suspensions for contaminants using electrometric, spectrophotometric, and chromatographic techniques.

541 Physicochemical Water and Wastewater Treatment 3 Prereq Math 315; rec C E 442. Principles of physical and chemical operations used in water and wastewater treatment, including chemical reactor theory, sedimentation, filtration, precipitation, mass transfer, coagulation/floculation, disinfection, adsorption and ion exchange. Cooperative course taught by WSU, open to UI students (CE 531).

542 Biochemical Wastewater Treatment 3 Prereq C E 541. Principles of biochemical operations used in wastewater treatment including biochemical energetics, kinetics, activated sludge and fixed film reactors, nutrient removal, and sludge handling and treatment. Cooperative course taught by WSU, open to UI students (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.

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 351. Cavitation, air entrainment, hydraulic machinery, similitude, mixing in rivers and estuaries, hydraulic design.

555 Natural Treatment Systems 3 Prereq senior or graduate standing. Principles and design procedures of natural systems for wastewater treatment for agricultural and non-agricultural applications.
666 Pavement Management and Rehabilitation 3 Prereq C E 322. Overview of Pavement Management Systems; PMS project and network levels; serviceability concepts and performance models; PMS data needs; rehabilitation and maintenance strategies; life cycle cost analysis; implementation of PMS in design, construction, maintenance, and research; examples of working PMS; maintenance and rehabilitation of asphalt and concrete pavements. Cooperative course taught by UI, open to WSU students (CE 577).

567 Properties of Highway Pavement Materials 3 Prereq C E 400 or instructor permission. Physical and mechanical properties of asphalt and Portland cement concrete materials; design of asphalt concrete mixes; introduction to viscoelastic theory; characterization methods, emphasizing fatigue, rutting, and thermal cracking; modification and upgrading techniques. Three 1- 1/2 hr lectures a wk and variable number of lab hrs for demonstration. Cooperative course taught jointly by WSU and UI (CE 556).

572 Advanced Pavement Design and Analysis 3 Prereq C E 473 or instructor permission. Design of new and rehabilitated asphalt and Portland Cement concrete pavements; mechanistic-empirical design procedures, performance models; deflection-based structural analysis, overlay design, environmental effect; long-term pavement performance (LTPP), and introduction to research topics in pavement engineering. Cooperative course taught jointly by WSU and UI (CE 575).

580 Graduate Seminar 1 May be repeated for credit; cumulative maximum 4 hours. Lectures and reports on current developments in research and practice.

583 Aquatic Chemistry 3 Prereq C E 518. Chemical principles as applied to natural environmental system, water supply and pollution and 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.

585 Aquatic System Restoration 3 Prereq Chem 345, C E 583; C E 581, MBioS 101. Study of natural, damaged and constructed ecosystems with emphasis on water quality protection and restoration of lakes, rivers, streams and wetlands.

586 Bioremediation of Hazardous Waste 3 Prereq C E 584. Applications of bioremediations to in situ subsurface treatment of hazardous waste; subsurface microbial degradation as related to microbial ecology.

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.

589 Atmospheric Chemical and Physical Processes 3 Processes of removal of pollutants from the atmosphere; radical chain reactions, particle formation, model calculations.

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. Preparation and structure-property relationship of polymer materials with emphasis on fracture mechanics and toughening.

594 Natural Fibers 3 Prereq graduate standing. Structural aspects and properties of natural fibers including anatomy, ultrastructure, and chemistry.

595 Polymer and Composite Processing 3 Prereq graduate standing. Polymer and composite processing from fundamental principles to practical applications.

596 Engineered Wood Composites 3 Prereq graduate standing. Theory and practice of wood composite materials, manufacture and development.

597 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.

598 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.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master's Research, Thesis and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

The Edward R Murrow College of Communication

www.communication.wsu.edu

Student Services, Murrow East 226
509-335-7333

Founding Dean, L. Pintak; Associate Dean of Academics, P. David; Associate Dean Digital Media and General Manager of Murrow Public Media, M. Marcelo; Professors, E. Austin, E. L. James, B. Pinkleton, P. Sias, A. S. Tan; Lester Smith Distinguished Professor, G. Johnson; Associate Professors, R. Busselle, D. Demers, J. Drzewiecka, D. Hindman, E. Hindman, S. Hust, M. Salvador; Assistant Professors, B. Atwood, M. Bean, E. Hoffman, P. Jain, T. Norton, J. Peterson, C. Yan; Clinical Associate Professors, R. Kelly, R. Taflinger; Clinical Assistant Professors, B. Atwood, B. Shory; Instructors, D. Petek, W. Popeski, Y. Solodovnikova, P. Wadleigh; Visiting Professor, K. Kitatani; Professors Emeriti, J. Ayres, T. Heuterman, T. Hopf, B. Krueger, R. Nofinger, J. Reagan, W. N. Robinson; Director of Student Services, S. Brabb; Director of Special Projects, L. Ganders.

Communication is a vital force in society. New practices and techniques in communication require 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, journalism, organizational communication, or public relations. The undergraduate program reflects a blending of professional, liberal arts, 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 technologies; 2) communicate clearly and succinctly, in both written and verbal forms, 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.
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 are placed in rank order. The top students are certified based on the number of spots available that semester. Students transferring into the College with SS or more credit hours should complete the certification requirements within two semesters. All students should certify before earning 90 credit hours.

General College 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 College of Communication.

Undergraduate Minor

The Murrow College of Communication offers an undergraduate minor in Communication. Students interested in declaring a minor in communication should contact the Murrow College Student Services Office.

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 an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

COMMUNICATION - ADVERTISING OPTION (120 HOURS)

All degree programs 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
- 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
- Social Sciences [S,K] (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
- GenEd 110 [A] (GER) 3

Second Year

First Term
- Com 245 3
- Com 265 3
- Math Proficiency [N] (GER) 3
- Emphasis Elective 3

Second Term
- Adver 380 3
- Arts & Humanities [H,G] (GER) 3
- Com 295 3
- Intercultural Studies [I,G,K] (GER) 3
- Physical Sciences [P] (GER) 4

Third Year

First Term
- Adver 381 [M] 3
- Foreign Language, if necessary, or Elective 6
- Mkrg 360 3
- Emphasis Elective 3

Second Term
- 300-400-level Emphasis Elective 3
- Adver 382 3
- Biological Sciences [B] (GER) 4
- Upper-division Core 3

Fourth Year

First Term
- 300-400-level Emphasis Elective 3
- Emphasis Elective 3
- Internship/Enrichment 3
- Seminar [M] 3
- Upper-division Core 3

Second Term
- Adver 480 3
- Foreign Language, if necessary, or Elective 6
- Internship/Enrichment 3
- Tier III [T] Course (GER) 3

COMMUNICATION - APPLIED INTERCULTURAL 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
- Com 101 [S] (GER) 3
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

Second Term
- Hours
- 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
- Com 101 [S] (GER) 3
- GenEd 110 [A] (GER) 3

COMMUNICATION - BROADCAST NEWS/BROADCAST PRODUCTION 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

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 242, 440, 450, 470, ComSt 324, 385, 401, 485, 488.
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<tr>
<th>Tier</th>
<th>Courses</th>
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<tbody>
<tr>
<td>I</td>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER)</td>
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<tr>
<td>II</td>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>III</td>
<td>ComSt 102 [C] (GER)</td>
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<td>IV</td>
<td>GenEd 111 [A] (GER)</td>
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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.

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### Communicating - Journalism Option (120 Hours)

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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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### Communicating - Organizational Option (120 Hours)

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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.
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.

COMMUNICATION - PUBLIC RELATIONS OPTION (120 HOURS)

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<tr>
<td>Com 101 [S] (GER)</td>
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<td>Engl 101 [W] (GER)</td>
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<th>Course</th>
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<td>Com 265</td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>Math Proficiency [N] (GER)</td>
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<td>Com 295</td>
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<tr>
<td>Physical Sciences [P] (GER)</td>
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<td>Social Sciences [S,K] (GER)</td>
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<tr>
<td>Apply for Certification Complete Writing Portfolio</td>
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<td>Mktg 360</td>
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<td>Biological Sciences [B] (GER)</td>
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<td>Com 409</td>
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<tr>
<td>P R 313 [M]</td>
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<td>Upper-division Core</td>
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<td>Emphasis Elective</td>
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<td>Foreign Language, if necessary, or Elective</td>
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<td>Seminar</td>
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<th>Course</th>
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<td>Foreign Language, if necessary, or Elective</td>
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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, ComSt 324, 335, 385, 401, 421, 435, 485, 488, Jour 405, 425

4 Any seminar numbered 475 in communication.

Description of Courses

ADVERTISING

Upper-division Course 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 321, ComSt 302, ComSt 342, ComSt 421, ComSt 471, and Jour 405, for students certified in a major requiring these courses.)

Adver

380 Advertising Principles and Practices

Advertising history, theory and practice by advertising agencies and organizations.

381 [M] Advertising Copywriting and Creative Strategies

Prereq Adver 380; certified major in communications. Development of effective advertising copy and creative strategies.

382 Media Planning

Prereq Adver 380; certified major in communications. Media planning theories, strategies, and practices.

475 Seminar in Advertising

May be repeated for credit; cumulative maximum 9 hours. Prereq certified major in communications.

480 Advertising Agency Operation and Campaigns

Prereq Adver 380; Adver 381; Adver 382; certified major in communications. Principles and functions of advertising management: campaign planning, execution, presentation and evaluation.

495 Advertising Professional Internship

V 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 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

BROADCASTING

Bdcst

150 Introduction to Broadcast Equipment

By interview only. Orientation to broadcast equipment; audio, studio television, and field television, as applied to various functions. 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.

365 [M] News and Public Affairs for Radio

3 (2-3) Prereq Com 295; Bdcst 350; certified major in communications.

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 350; Bdcst 355; certified major in communications. Writing, reporting, and editing broadcast news; development and production of documentaries.

466 Digital Video Editing for News Reporting and Documentary

3 (2-3) Prereq certified major in communications. Video editing for news; development and production of documentaries.

475 [M] Seminar in Broadcasting

May be repeated for credit; cumulative maximum 9 hours. Prereq certified major in communications; senior or graduate standing.

481 Broadcast Management

3 Prereq certified major in communications; senior standing.
Communication

495 Broadcasting Professional Internship
V 2 (0-6) to 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. Prereq Bdst 365, 455, or 465; certified major in communications; by interview only. S, F grading.

499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

COMMUNICATION

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.

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.

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.

415 Law of Mass Communications 3 Prereq certified major in communications; junior standing.

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.

440 Media Ethics 3 Prereq certified major in communications; junior standing. Foundations and frameworks of media ethics; case studies in assessing media performance.

460 Mass Media Criticism 3 Prereq certified major in communications; junior standing. Theoretical and philosophical basis for critical analysis of mass communication.

464 Gender and the Media 3 Prereq Com 101 or WSt 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 [T,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.

495 Communication Professional Internship
V 2 (0-6) to 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. Prereq by interview only. S, F grading.

499 Special Problems V 1 (0-3) to 4 (0-12) 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 May be repeated for credit; cumulative maximum 4 hours. Prereq graduate standing; by interview only. S, F grading.

506 Persuasion and Social Influence 3 Prereq graduate standing. Theories, concepts and strategies 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.

514 Health Communication Theories and Campaigns 3 Health communication theories with a focus on campaign construction and evaluation.

516 Health Communication and Society 3 [S] Reviews, critiques and applications of research regarding the impact of social and cultural environments on health communication.

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.

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.

526 Current Topics in Intercultural Communication 3 Prereq graduate standing. Topics in current intercultural communication research.

535 Organizational Communication Theory 3 May be repeated for credit; cumulative maximum 6 hours. 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.

550 Media Processes and Effects: Theory and Practice 3 Physiological, psychological and social effects of media messages and technologies upon individuals and societies.

552 Current Issues in Media Processes and Effects 3 Prereq graduate standing. Current issues in media processes and effects.

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.
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 V 1 (0-3) to 18 (0-54) May be repeated for credit. Prereq by interview only. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. Prereq by interview only. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. Prereq by interview only. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. Prereq by interview only. S, F grading.

COMMUNICATION STUDIES

ComSt


235 [C] Principles of Group Communication 3 Theoretical and practical aspects of communication in groups; classroom exercises and films demonstrate principles and develop skills.

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 1 course; three Tier II courses. Global cultural changes and their influences on intercultural communication including perspectives and readings from different disciplines.

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 V 3 May be repeated for credit; cumulative maximum 9 hours. Prereq certified major in communications; senior or graduate standing.

485 Organizational Consulting 3 Develop and practice consulting skills relevant to a practical situation and apply organizational literature to a client.

495 Communication Studies Professional Internship V 2 (0-6) to 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. Prereq by interview only. S, F grading.

499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. Prereq certified major in communications; by interview only. S, F grading.

JOURNALISM

Jour

305 [M] Reporting 3 Prereq Com 295; certified major in communications.

330 News Editing 3 (2-3) Prereq Jour 305; certified major in communications. Basic copy editing and design skills for print media.

425 [M] Reporting of Public Affairs 3 Prereq Jour 305; certified major in communications. Research covering public and private sectors.

431 Advanced Editing 3 (2-3) Prereq 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 May be repeated for credit; cumulative maximum 9 hours. Prereq certified major in communications.

495 Journalism Professional Internship V 2 (0-6) to 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. Prereq Jour 305; P R 313; certified major in communications; by interview only. May be repeated for credit; cumulative maximum 12 hours. S, F grading.

499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. Prereq certified major in communications. S, F grading.

Community and Rural Sociology

www.crs.wsu.edu


Description of Courses

COMMUNITY AND RURAL SOCIOLOGY

CRS

334 [S] Principles of Community Development 3 Prereq social science course; sophomore standing. Same as H D 334.

336 [S] Agriculture, Environment and Community 3 Prereq Prereq 3 credits S or K GER; sophomore standing. Examines interdependencies between farming/ ranching, the natural environment and human communities including perspectives on sustainable agriculture.

416 Sustainable Small Farming and Ranching Overview 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.
Department of Comparative Ethnic Studies

http://libarts.wsu.edu/ces
Wilson Hall 111
509-335-2605

Chair and Professor, C.R. King; Professor, M. Bloodsworth-Lugo; Associate Professors, K. Christen, L. Guerrero, D. Leonard, C. Lugo-Lugo, R. Ong, J. STREAMS.

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 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 critical understanding of the contemporary and historic developments of racialized communities. CES fosters an in-depth understanding of the complexities of the United States culture and its intersections with global perspectives, while examining social justice concerns and movements. The teaching, research, and service 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 serves as consultant for university and community concerns related to race.

Overarching Learning Goals
At the completion of their baccalaureate degree in the Department of Comparative Ethnic Studies, students will have the skills to:
• 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.
• Critique Eurocentrism and understand prevailing Eurocentric formations on race and ethnicity as they have contributed to social conflict, economic issues and political inequalities.
• 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.

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>CES 201</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GENED 110 [A] (GER)</td>
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</tr>
<tr>
<td>Science elective</td>
<td>1</td>
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<tr>
<td>Tier I science [Q]</td>
<td>3</td>
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</tbody>
</table>
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 educational abroad or educational exchange courses.

Description of Courses

COMPARATIVE ETHNIC STUDIES

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.

171 [G] Introduction to Indigenous Studies 3 Introduction to indigenous studies; introductory course to contemporary indigenous cultures and politics.

201 Foundations of Comparative Ethnic Studies 3 Critical examination of the history, methodology and theoretical concepts of ethnic studies.

204 [S] Critical Studies in Whiteness 3 Political and cultural practices that define whiteness through history, popular culture and everyday life.

209 Hip Hop Around the Globe 3 Prereq CES 101; CES 201 or 131. Diversity and complexity of hip hop at a local, national and global level.

211 [K] Asian Pacific American History 3 Historical experience of Asian/Pacific Americans since the 19th century.

220 [H,D] Introduction to Multicultural Literature 3 Survey of multicultural literature including European American, African American, Asian American, Chicana/o, and Native American authors.

222 Race in Sport Films 3 (2-2) Examination of racial politics through critical discussions of sport film.


244 Critical Globalizations 3 Critical examination of the historical trajectory and contemporary practices, institutions and policies that make up “globalization”.

254 [S,D] Comparative Latino/a Cultures 3 Comparison of the contemporary and historical experiences of Latinos and Latinas in the United States, and their relations with other ethnic minority groups and the majority populations.

255 [S,D] Chicana/o History 3 The historical development of the Chicana/o 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.

301 [M] Race and Global Inequality 3 Prereq Eng 101. Examination of nationalism, colonization, empire-building, racism, ethnic conflict, and class inequality in a global context.

302 [S,D] Social Psychology of Prejudice 3 Causes and nature of prejudice from social, psychological, and cultural theoretical perspectives.


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 [H,D] 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.


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.

331 [G] African American Literature 3 Introduction to major issues and major works in the African American literary tradition.
332 [M] Topics in African American Literature 3 May be repeated for credit; cumulative maximum 6 hours. Same as Engl 322.

335 [S] Black Freedom Struggle 3 Historic exploration of black resistance focusing on nationwide movement that developed following World War II.


338 [H,D] Cinematic Images of Blackness 3 Prereq CES 131 or 101. Critical perspectives on the history of cinematic images of blackness; traces experiences of blacks within Hollywood as actor or subject, subject or image.

340 Empire and Race 3 Prereq CES 244 or 301. Analysis of historical and contemporary manifestations of Empire and their effect on race and the international racialized division of labor.


357 Chicana/os and Popular Culture 3 Representation of Chicanas in US popular culture.


359 Chicana/o and Latina/o Politics 3 Character, role, and goals of Chicano/Latino politics; contemporary Chicano/Latino issues.

372 [S,D] Indigenous 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 indigenous 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] Indigenous Film 3 Critical examination of films and videos featuring and by indigenous peoples; traces the history of the indigenous peoples as subjects of films and as filmmakers.

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.

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 Com 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”.

407 Race, Gender and the Prison Industrial Complex 3 Prereq CES 131 or 201. Race, gender and nationality 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. Intersection of ethnicity, race, class, gender and sexuality in the lives of Asian Pacific American women.

412 [T] Intercultural Processes in Global Contexts 3 Prereq completion of one Tier I and three Tier II courses. Same as ComSt 421.

426 [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 CES 244 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.

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.

456 [T] Race, Science and Society 3 Prereq completion of one Tier I and three Tier II courses. Racial thinking in science tracing the impact of scientific racism on policy, popular thought and social movements.

470 [T] Indigenous Politics 3 Prereq completion of one Tier I and three Tier II courses. An overview of the struggles of indigenous people; issues include rights, recognition, identity, natural resources, intellectual property, and repatriation globally.

475 [T,D] Indians of the Northwest 3 Prereq Anth 101, 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; cumulative maximum 100 hours. S, F grading.

491 [M] 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.

494 Advanced Topics in Ethnic Studies 3 May be repeated for credit; cumulative maximum 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.
The Secondary Concentration option requires the completion of at least 15 semester hours of approved DTC course work, including at least six upper-division semester 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.

#### DIGITAL TECHNOLOGY & CULTURE, CREATIVE MEDIA & DIGITAL CULTURE OPTION (VANCOUVER ONLY) (120 HOURS)

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<td>Intercultural Studies [L,G,K] (GER)</td>
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<td>4</td>
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<td>Complete Writing Portfolio</td>
<td>Writing Portfolio</td>
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**Third Year**

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<td>DTC 356</td>
<td>Digital Technology Concepts</td>
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<td>MIS 250</td>
<td>Management Information Systems</td>
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<tr>
<td>3</td>
<td>DTC 375</td>
<td>Digital Technology Concepts</td>
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**Fourth Year**

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<th>Course Name</th>
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<td>DTC Concentration</td>
<td>Digital Technology Concentration</td>
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<td></td>
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<td>DTC Core Option</td>
<td>Digital Technology Core Option</td>
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</table>

#### Description of Courses

**DIGITAL TECHNOLOGY AND CULTURE**

**DTC**

335 Digital Animation: Story, Narration and Production (3-2) 3-D digital animation for creative and professional presentations using Maya software, art skills, story-telling and team problem-solving techniques.

336 [H] Composition and Design 3 Prereq junior standing. Design practices and process for composing for a media-rich, technologically complex 21st Century.

338 Special Topics in Digital Technology and Culture 3 May be repeated for credit; cumulative maximum 6 hours. Prereq junior standing. Major trends or artists in digital technology and culture.

354 Digital Storytelling 3 Nonlinear, multi-linear, and interactive narrative using elements of written and dialog image.


356 Electronic Research and the Rhetoric of Information 3 Social and cultural role of information; research with electronic sources; production, validation, storage, retrieval, evaluation, use, impact of electronic information.

375 [H,M] Language, Texts and Technology 3 Prereq junior standing. Relationship between technology and communication; writing practices from a historical point of view.

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 DTC 375. Development and use of new literacies as they affect communication through technology.

477 Advanced Multimedia Authoring 3 Prereq DTC 355. Advanced writing, imaging and teamwork skills for authored in new computer-based media; website project in client-oriented context.

478 Usability and Interface Design 3 (0-6) Prereq DTC 355. Design of websites using best practices of visual literacy, interface architecture and usability.
Program in Criminal Justice

libarts.wsu.edu/crimj
Johnson Tower, 801
509-335-2544

Associate Professor and Director, D. Brody; Professors, O. Marenin, B. Vilas; Associate Professors, L. Drapela, E. Latze, D. Wood; Assistant Professors, Z. Hamilton, Z. Hays, M. Neull; Clinical Assistant Professor, J. VanWormer. Faculty from other Departments and Programs who have an interest in teaching or researching criminal justice topics will be affiliated with the Program.

The Program in Criminal Justice 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 management, programs, and policies conducted by justice system institutions.

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 multidisciplinary faculty, courses cover such areas as public administration, American public policy, constitutional law, gender and politics, and political psychology. Additional elective courses are offered by departments within the College of Liberal Arts.

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 in 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 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 DEGREE PROGRAM

(120 HOURS)

Students who major in criminal justice must complete the 15 hour criminal justice core (Crm J 101, 201, 330, 450, and either 320 or 420); 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); 8 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

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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>Social Sciences [S,K] (GER)</td>
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Second Term

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<td>Communication Proficiency [C,W] (GER)</td>
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<td>Crm J 201</td>
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Second Year

First Term

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Second Term

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<td>[I,G,K], or Social Sciences [S,K] (GER)</td>
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<td>Physical Sciences [P] (GER)</td>
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<td>Soc 320 or Approved Statistics Course</td>
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Crm J Institution course 3
Pol S collateral course 3
Complete Writing Portfolio

Third Year

First Term

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<td>Pol S collateral course</td>
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<td>Quantitative methods course</td>
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Second Term

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Fourth Year

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<td>Crm J 450 [M]</td>
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Second Term

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Minors

Criminal Justice

The minor in Criminal Justice requires 18 credits of course work in criminal justice, including Crm J 101, 201, 205, and 330. 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

Crm J

101 Introduction to the Administration of Criminal Justice 3 Agencies and processes in the administration of criminal justice. Cooperative course taught jointly by WSU and UI (p. 101).

201 Introduction to Criminological Theory 3 Analysis of conceptions of crime and seriousness as determined by societal factors.

205 [S,D] Realizing Justice in a Multicultural Society 3 Critical analyses of criminal justice policies related to race, class, gender, immigration and sexual orientation.

311 Research Methods for Criminal Justice 3 Discussion of research methods appropriate for the study of crime and criminal justice policies and institutions.
426 Victimology and Public Policy 3 Examination of victimization; policy responses 3/0/1 to 3 (0-5) May be repeated for credit. S, F, NC grading.

427 Crime Prevention Strategies 3 Personal, environmental, community-based and government crime prevention strategies and issues.

428 Drug and Alcohol Use and Abuse 3 Drug use, impact on behavior and drug control policies.

450 [M] Senior Seminar: Ethical Issues in Criminal Justice 3 Examination of ethical issues in decision making in criminal justice.


490 Criminal Justice Internship V 2 (0-6) to 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. 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 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

503 Research Methods in Political Science and Criminal Justice 3 Same as Pol S 503. Cooperative course taught by WSU, open to UI students (POLSC 531).

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 (JS 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 (JS 530).

540 Seminar in Evaluation Research 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).

555 Seminar in Criminological Theory 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 (JS 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 Gender and Justice 3 Criminal justice system's treatment of women offenders, victims, and professionals.

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 May be repeated for credit; cumulative maximum 6 hours. Same as Pol S 542.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Department of Crop and Soil Sciences

www.css.wsu.edu

Johnson Hall 291D

509-335-3475

The Department of Crop and Soil Sciences supports programs of study leading to the Bachelor of Science degrees in Integrated Plant Sciences and Agricultural and Food Systems. Undergraduate minors in Crop Science, Soil Science, Geospatial Analysis, and Agricultural and Food Systems, as well as a certificate program in Organic Agriculture, are also available. We also offer programs of study leading to the degrees of Master of Science in Crop Science, Master of Science in Soil Science, Doctor of Philosophy (Crop Science), and Doctor of Philosophy (Soil Science). A graduate certificate in Sustainable Agriculture is also available.

INTEGRATED PLANT SCIENCES AND AGRICULTURAL FOOD SYSTEMS

The science of plant life from molecule to market is the focus of the new Integrated Plant Sciences (IPS) Degree program. Delivered collaboratively by departments within the College of Agricultural, Human, and Natural Resource Sciences, the IPS degree provides students with an exciting depth and breadth of knowledge that crosses a variety of plant science disciplines, including crop and soil sciences, horticulture and landscape architecture, entomology, plant pathology, and food science. Students pursuing a Bachelor of Science degree in Integrated Plant Sciences may choose among seven majors highly sought by employers in the state and nationally: Agricultural Biotechnology, Field Crop Management, Fruit and Vegetable Management, Nursery and Greenhouse Management, Landscape Design and Implementation, Turfgrass Management, or Viticulture and Enology. More information regarding IPS is available under the Integrated Plant Sciences catalog section and http://ips.wsu.edu.

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, and Agriculture and Food Security. More information regarding AFS is available under the Agricultural and Food Systems catalog section and http://afs.wsu.edu.

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 student club activities.

Agricultural Biotechnology

The Integrated Plant Sciences degree, Agricultural Biotechnology major is designed for students interested in careers such as laboratory or research technicians in plant biotechnology, breeding, genetics, entomology, plant pathology, molecular biology, or physiology, as well as for students preparing for advanced degrees in these areas. The program emphasizes the development and application of new technology to ensure a safe and abundant food and fiber supply. Students may find employment in industry, government, or university labs.

Field Crop Management

The Integrated Plant Sciences degree, Field Crop Management major is ideal for students interested in agronomy, crop production, and plant, soil, and pest management. Crop scientists (or agronomists) are involved in improving food, feed, and fiber production. Graduates qualify for careers in agribusiness, corporate and technical farm management, professional consulting, research, and sales positions.

Turfgrass Management

The Integrated Plant Sciences degree, Turfgrass Management major is geared toward students interested in golf course managers, athletic field managers, or personnel managers in those venues. Students will take courses in turf management, turf production, plant pathology, entomology, soil fertility, and plant breeding to learn how to maintain healthy turfgrass systems. Additionally, students gain hands-on experience at the Palouse Ridge Golf Course, a new 18-hole championship golfing facility at the Pullman campus.

Agricultural Education

Combining the best of both agriculture and teaching, the Agricultural and Food Systems degree, Agricultural Education major prepares students to educate the next generation of agricultural leaders and consumers. Highly sought after by employers, they teach high school and middle school agricultural science classes, as well as serve as FFA advisors, adult education instructors, community outreach coordinators, university extension agents, etc.

Agricultural Technology and Production Management

Students in this Agricultural and Food Systems degree, Agricultural Technology and Production Management hands-on major gain a science-based overview of agriculture and food systems, with an emphasis on the practical application of technology to agricultural production systems. The program combines students' inherent creativity and interest in physical and biological sciences, technology, mathematics, business, and related subjects with their desire to develop innovative solutions to a variety of agricultural problems.

Organic Agricultural Systems

Significantly different than conventional agriculture, organic food production is one of the fastest growing segments of agriculture, with retail sales increasing by 20 percent annually since 1991. In many ways, Washington State has been a leader in this burgeoning new industry. This revolutionary new major is the first of its kind to be offered in the United States. Students in the Agricultural and Food Systems degree, Organic Agricultural Systems major take a diverse array of courses in the natural, environmental, economic and social sciences, as well as a number of courses focused on organic production practices.

Undergraduate Transfer Students

Students planning to transfer to Washington State University should take courses which meet general university and Integrated Plant Sciences or Agricultural and Food Systems core requirements.

Preparation for Graduate Studies in Crop and Soil Sciences

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 majors with a strong emphasis in plant sciences, chemistry, computer science, mathematics, and statistics. Preparation for an advanced degree in soil science includes course work outlined under one of the majors plus completion of additional elective courses in soil science as well as Math 171, Phys 102 or 202, and, if not specified in the major, Chem 345.

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.

Geospatial Analysis

The minor requires a minimum of 16 semester hours including the following core: Soils 368, 374 and Soils/NATRS 468/568; and 6 hours from the following: AgTM 405, L A 525, NATRS 464/564, SoilS 451, 508. Exceptional students may take graduate-level courses with instructor permission. Courses used for the minor in geospatial analysis may not be used for the minor in soils sciences. 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.

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.

Description of Courses

CROP SCIENCE

CropS

102 Cultivated Plants 3 Same as Hort 102.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>510</td>
<td>Seminar</td>
<td>503 Advanced Cropping Systems 3 Prereq CropS 201; PI P 429 or c/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 510).</td>
</tr>
<tr>
<td>511</td>
<td>Research Proposal and Development 2 Develop research proposal and give oral presentation to demonstrate ability to employ strategy and procedures to address objectives. S, F grading.</td>
<td>512 Topics in Crop Science V 1-2 May be repeated for credit. Concepts of plant breeding, seed physiology, and technology; crop physiology and management.</td>
</tr>
<tr>
<td>513</td>
<td>Biology of Weeds 3 Prereq graduate standing. Biology, ecology, and physiology of weeds; crop and weed interactions and interference. Cooperative course taught by UI, open to WSU students (PLSC 513).</td>
<td>520 Plant Cytotgenic Techniques 3 (2-4) Prereq MBioS 301. Techniques to study plant genes and chromosomes. Two lec and 4 hrs of lab a wk. (Alt/hrs). Cooperative course taught by UI, open to WSU students (PLSC 520).</td>
</tr>
<tr>
<td>702</td>
<td>Master's Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.</td>
<td>800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.</td>
</tr>
</tbody>
</table>

SOIL SCIENCE

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Organic Gardening and Farming 3 Principles and production practices of organic gardening and farming. Field trip required. Cooperative course taught by WSU, open to UI students (AG 101).</td>
<td>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.</td>
</tr>
<tr>
<td>302</td>
<td>Introduction of Agroecology 3 Prereq SoilS 201 Agroecological crop production through case study analyses and applications of ecological principles in traditional and modern farming systems.</td>
<td>306 [I] World Agricultural Systems 3 Prereq two semesters physical or biological sciences. Same as CropS 360.</td>
</tr>
<tr>
<td>368</td>
<td>Introduction to Geographic Information Systems 3 (2-3) 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.</td>
<td>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.</td>
</tr>
</tbody>
</table>

Crop and Soil Sciences
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>421</td>
<td>Advanced Soil Analysis</td>
<td>2 semesters of Chem; Soils 201.</td>
<td>Chemical processes in soil environment. Cooperative course taught by UI, open to WSU students (SOIL 422).</td>
</tr>
<tr>
<td>441</td>
<td>Soil Fertility</td>
<td>Pre req Soils 201.</td>
<td>Nutrient management impacts on crop productivity, soil and water quality; mineral requirements; soil testing; plant analysis; inorganic and organic fertilizers.</td>
</tr>
<tr>
<td>442</td>
<td>Soil Analytical Methods</td>
<td>2 (1-3) Pre req Soils 421, 441.</td>
<td>Laboratory exercises and methodology for characterization of soil fertility and chemistry including CEC, acidity, carbon, nitrogen, and plant nutrients.</td>
</tr>
<tr>
<td>451</td>
<td>Soil Geography</td>
<td>3 (2-3) Pre req Soils 201; Soils 368; or by instructor permission. Study the geographic distribution of soil features and properties at hillslope to global scales. Field trips required.</td>
<td></td>
</tr>
<tr>
<td>468</td>
<td>ArcGIS and Geospatial Analysis</td>
<td>4 (2-6) Pre req Biol 120, Geol 101 or Soils 201.</td>
<td>Geographic information systems applied to analysis of landscape data; maps, geographic coordinate systems and projections, geodatabases. Credit not granted for both Soils 468 and 568.</td>
</tr>
<tr>
<td>480</td>
<td>Practicum in Organic Agriculture</td>
<td>V 1 (0-3) to 6 (0-18)</td>
<td>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.</td>
</tr>
<tr>
<td>495</td>
<td>Research Experience</td>
<td>V 1-4</td>
<td>May be repeated for credit; cumulative maximum 12 hours. Same as Crops 495.</td>
</tr>
<tr>
<td>498</td>
<td>Professional Internship</td>
<td>V V 1 (0-3) to 6 (0-18)</td>
<td>May be repeated for credit; cumulative maximum 9 hours. Planned and supervised professional work experience. $, F grading.</td>
</tr>
<tr>
<td>499</td>
<td>Special Problems</td>
<td>V 1 (0-3) to 4 (0-12)</td>
<td>May be repeated for credit. $, F grading.</td>
</tr>
<tr>
<td>501</td>
<td>Seminar</td>
<td>1</td>
<td>1 may be repeated for credit. Presentation of research information.</td>
</tr>
<tr>
<td>502</td>
<td>Advanced Topics in Soils</td>
<td>V 1-3</td>
<td>May be repeated for credit; cumulative maximum 6 hours. Interpretation, presentation, and discussion of current research on soils, uses, and management.</td>
</tr>
<tr>
<td>503</td>
<td>Advanced Soil Analysis</td>
<td>V 1-3</td>
<td>May be repeated for credit; cumulative maximum 6 hours. By interview only. Soil research techniques; application of modern instrumentation to soil analysis.</td>
</tr>
<tr>
<td>505</td>
<td>Teaching Practicum</td>
<td>1</td>
<td>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. $, F grading.</td>
</tr>
<tr>
<td>506</td>
<td>Environmental Spatial Statistics</td>
<td>3 (2-2) Pre req Stat 412.</td>
<td>Theoretical introduction and practical training in spatial data analysis for graduate students in the environmental sciences. Cooperative course taught by WSU, open to UI students (REM 508).</td>
</tr>
<tr>
<td>511</td>
<td>Research Proposal and Development</td>
<td>2</td>
<td>Same as Crops 511. $, F grading.</td>
</tr>
<tr>
<td>514</td>
<td>Environmental Biophysics</td>
<td>2 Pre req Math 107.</td>
<td>Graduate-level counterpart of Soils 414; additional requirements. Credit not granted for both Soils 414 and 514.</td>
</tr>
<tr>
<td>515</td>
<td>Environmental Biophysics Laboratory</td>
<td>1 (0-3) Pre req Soils 414 or c/f. Graduate-level counterpart of Soils 415; additional requirements. Credit not granted for both Soils 415 and 515.</td>
<td></td>
</tr>
<tr>
<td>521</td>
<td>Physical Chemistry of Soils</td>
<td>3 Pre req by instructor permission.</td>
<td>Chemical equilibrium and kinetics of soil solution speciation, mineral precipitation and dissolution, adsorption and partitioning reactions, and ion exchange.</td>
</tr>
<tr>
<td>526</td>
<td>Soil Mineralogy</td>
<td>3 (2-3) Pre req Soils 422; Soils 454.</td>
<td>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, open to WSU students (SOIL 526).</td>
</tr>
<tr>
<td>533</td>
<td>Advanced Vadose Processes</td>
<td>2 Pre req Soils 413 or Soils 421 or by permission.</td>
<td>Methods and models for water, heat, vapor and solute transport in the vadose zone; transfer functions to describe solute transport; non-linear parameter estimation; fate and transport of water, heat, and solutes in the vadose zone; hydrological and geochemical processes in unsaturated subsurface materials.</td>
</tr>
<tr>
<td>537</td>
<td>Soil Biochemistry</td>
<td>3 Pre req MBioS 303; Micro 201; Soils 421.</td>
<td>Origin, chemical structure, and significance of soil biochemical compounds. (Alt/yr). Cooperative course taught by UI, open to WSU students (SOIL 537).</td>
</tr>
<tr>
<td>541</td>
<td>Soil-Plant-Microbial Interactions</td>
<td>3 Pre req Soils 421, 431, or 441.</td>
<td>Soil-plant-microbial relationships to plant nutrition, plant health, and environmental cleanup; rhizosphere chemistry and microbial ecology.</td>
</tr>
<tr>
<td>544</td>
<td>Nitrogen Cycling in the Earth's Systems</td>
<td>3 Pre req graduate standing. Same as Biol 544.</td>
<td></td>
</tr>
<tr>
<td>547</td>
<td>Soil Fertility Management</td>
<td>3 Pre req Soils 441.</td>
<td>Philosophy of fertilizer recommendations based on soil and plant tissue testing; principles of fertilizer manufacture, placement and use.</td>
</tr>
<tr>
<td>557</td>
<td>Advanced Soil Genesis and Classification</td>
<td>3 (2-3) Pre req Soils 451.</td>
<td>Processes of soil genesis as influenced by environmental factors; rationale and development of soil taxonomy; field study of pedological problems. Two lec and one 2-hr lab a wk; 1/2-day and 1-day field trips reqd. (Alt/yr). Cooperative course taught by UI, open to WSU students (SOIL 557).</td>
</tr>
<tr>
<td>568</td>
<td>ArcGIS and Geospatial Analysis</td>
<td>4 (2-6) Graduate-level counterpart of Soils 486; additional requirements. Credit not granted for both Soils 468 and 568.</td>
<td></td>
</tr>
<tr>
<td>600</td>
<td>Special Projects or Independent Study</td>
<td>V 1 (0-3) to 18 (0-54)</td>
<td>May be repeated for credit. $, F grading.</td>
</tr>
<tr>
<td>700</td>
<td>Master's Research, Thesis, and/or Examination</td>
<td>V 1 (0-3) to 18 (0-54)</td>
<td>May be repeated for credit. $, F grading.</td>
</tr>
<tr>
<td>702</td>
<td>Master's Special Problems, Directed Study, and/or Examination</td>
<td>V 1 (0-3) to 18 (0-54)</td>
<td>May be repeated for credit. $, F grading.</td>
</tr>
<tr>
<td>800</td>
<td>Doctoral Research, Dissertation, and/or Examination</td>
<td>V 1 (0-3) to 18 (0-54)</td>
<td>May be repeated for research credit. $, F grading.</td>
</tr>
</tbody>
</table>

**Dance Courses**

**Description of Courses**

**DANCE**

**Dance**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>210</td>
<td>Jazz Dance I</td>
<td>1</td>
<td>(0-3) May be repeated for credit; cumulative maximum 6 hours. Basic jazz dance techniques, stage choreography, and performance.</td>
</tr>
<tr>
<td>211</td>
<td>Modern Dance I</td>
<td>1</td>
<td>(0-3) May be repeated for credit; cumulative maximum 6 hours. Basic modern dance techniques, stage choreography, and performance.</td>
</tr>
<tr>
<td>310</td>
<td>Jazz Dance II</td>
<td>1</td>
<td>(0-3) May be repeated for credit; cumulative maximum 6 hours. Prereq audition required. Advanced jazz dance techniques, stage choreography, and performance.</td>
</tr>
</tbody>
</table>

**Digital Technology and Culture**

Professors, B. Condon, T. V. Reed, S. Ross; Associate Professors, K. Christen, P. Ericson; Assistant Professors, K. Arola, A. Davis (Tri-Cities); Visiting Assistant Professor, P. Mulhauser (Tri-Cities); Instructors, S. Anderson, R. Goodrich; Coordinators, K. Arola (Pullman), D. Gast (Tri-Cities).

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.
• 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 Digital Information Management.

### 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)**

### DTC Certification Requirements, Pullman Campus

Certification will take place each semester approximately one month before registration for the following semester begins. To apply for certification a student must have the following: 24 hours; a minimum 2.2 gpa; one credit of ENGL 300 with evidence of projects OR sufficient evidence of facility in web authoring, animation, video production, and/or graphic design; and a written statement of purpose (approximately 500-750 words) explaining how the DTC major supports the student's career goals. Certification applications will be reviewed by a committee that includes the DTC Coordinator, one DTC faculty member, the Director of Undergraduates Studies, and one DTC instructor or a graduate student teaching DTC courses. Students will be placed in rank order and the top students will be certified based on how many spots are available. Transfer students with 55 or more hours should complete the certification requirements within two semesters. All students should certify before earning 90 hours.

### First Year

#### First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<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>Science Elective (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Elective</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] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Communication Proficiency [C,W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>F A 102</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 111 [A] (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>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>6</td>
</tr>
<tr>
<td>DTC 355 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
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</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>3</td>
</tr>
<tr>
<td>DTC 356</td>
<td>3</td>
</tr>
<tr>
<td>DTC 375</td>
<td>3</td>
</tr>
<tr>
<td>Physical Sciences [P] (GER)</td>
<td>4</td>
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</table>

### Third 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], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
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</tr>
<tr>
<td>DTC Concentration Elective&lt;sup&gt;2&lt;/sup&gt;</td>
<td>3</td>
</tr>
<tr>
<td>DTC Core Option&lt;sup&gt;2&lt;/sup&gt;</td>
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<tr>
<td>F A 331</td>
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<td>Elective</td>
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#### Second Term

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>DTC 475</td>
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<tr>
<td>DTC Concentration Elective&lt;sup&gt;2&lt;/sup&gt;</td>
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<tr>
<td>DTC Core Option&lt;sup&gt;2&lt;/sup&gt;</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
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### Fourth Year

#### First Term

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<tr>
<td>DTC Concentration&lt;sup&gt;2&lt;/sup&gt;</td>
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<td>Tier III Course [T] (GER)</td>
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<td>Electives</td>
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#### Second Term

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Senior Seminar, Thesis, or Internship</td>
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</tr>
<tr>
<td>Electives</td>
<td>12</td>
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</tbody>
</table>

<sup>1</sup> Prerequisite to F A 331.  <sup>2</sup> 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 373 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.

### Description of Courses

**DIGITAL TECHNOLOGY AND CULTURE**

DTC

335 Digital Animation: Story, Narration and Production 3 (2-2) 3-D digital animation for creative and professional presentations using Maya software, art skills, story-telling and team problem-solving techniques.

336 [H] Composition and Design 3 Prereq junior standing. Design practices and process for composing for a multimedia environment including color, pattern and shape.

338 Special Topics in Digital Technology and Culture 3 May be repeated for credit; cumulative maximum 6 hours. Prereq junior standing. Major trends or artists in digital technology and culture.

354 Digital Storytelling 3 Nonlinear, multi-linear, and interactive narrative using elements of creative writing such as character, dialog, setting, plot and image.


356 Electronic Research and the Rhetoric of Information 3 Social and cultural role of information; research with electronic sources; production, validation, storage, retrieval, evaluation, use, impact of electronic information.

375 [H,M] Language, Texts and Technology 3 Prereq junior standing. Relationship between technology and communication; writing practices from a historical point of view.

475 [T,D] Digital Technology 3 Prereq junior standing; completion of one Tier I and three Tier II courses. Same as Am St 475.

476 Digital Literacies 3 Prereq DTC 375. Development and use of new literacies as they affect communication through technology.

477 Advanced Multimedia Authoring 3 Prereq DTC 355. Advanced writing, imaging and teamwork skills for authoring in new computer-based media; website project in client-oriented context.

478 Usability and Interface Design 3 (0-6) Prereq DTC 355. Design of websites using best practices of visual literacy, interface architecture and usability.
School of Earth and Environmental Sciences

www.sees.wsu.edu
Webster Physical Science Bldg. Room 1228 509-335-3009
Student Svs: Webster 1227, 509-335-8538


The School of Earth and Environmental Sciences was established in 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 methods, 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 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 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 graduate study.

The department has modern teaching facilities and special equipment, including an electron microscope, 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.

**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 DEGREE PROGRAM**

(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, and environmental analysis. (Fact sheets on each option are available from the ES/RE 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 2.00, 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**

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 105 [P] (GER)¹</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>ES/RP 101 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
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**Second Term**

<table>
<thead>
<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>Engel 101 [W] or 301 [W] (GER)²</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
</tr>
<tr>
<td>Math 140 [N] or 171 [N] (GER)³</td>
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**Second Year**

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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</tr>
<tr>
<td>Biol 106 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Geol 230</td>
<td>3</td>
</tr>
<tr>
<td>Phys 101 [P] or 201 [P] (GER)</td>
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<thead>
<tr>
<th>Second Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biol 107 [B] (GER)</td>
<td>4</td>
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<tr>
<td>Geol 101 [P], 102 [P], 210 [P], or SoilS 201 [B] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Option Course</td>
<td>3</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
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<tr>
<td>Complete Writing Portfolio</td>
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**Third Year**

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
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<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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<td>Stat 212 [N] (GER) or 412</td>
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<tr>
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<tbody>
<tr>
<td>300-400-level Geol Course</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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<td>Option Course</td>
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**Fourth Year**

<table>
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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>
<td>Intercultural Studies [I,G,K] (GER)³</td>
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<tr>
<td>MBioS 301 or 303</td>
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<tbody>
<tr>
<td>Advanced Physics</td>
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<tr>
<td>ES/RP 444</td>
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<tr>
<td>ES/RP 491</td>
<td>1</td>
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<td>Option Courses</td>
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<tr>
<td>Tier III Course [T] (GER)</td>
<td>3</td>
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</table>

¹ Math 107 or concurrent enrollment is the prerequisite for Chem 105 and Math 140/171.
² An alternative is Engl 402 [W] which has a prerequisite of junior standing.
³ The remaining GERs should include paired introductory and 300-400-level courses in economics, agricultural economics, and either sociology or cultural anthropology. Consult advisor.
⁴ Select one from Pol S 430, NATRS 438, or ES/RP 335.
⁵ Phys 102 [P] or 202 [P] (GER), or ES/RP 414 and 415.

**GEOL OGY DEGREE PROGRAM**

(120 HOURS)

A 2.0 minimum gpa in the major is required.

**First Year**

<table>
<thead>
<tr>
<th>First Term</th>
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</tr>
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<tbody>
<tr>
<td>Chem 105 [P] (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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<tr>
<td>Geol 101 [P] or 102 [P] (GER)</td>
<td>4</td>
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<tr>
<td>Math 107, if necessary</td>
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**Second Term**

<table>
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<th>Hours</th>
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<tbody>
<tr>
<td>Chem 106 [P] (GER)</td>
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<tr>
<td>ComSt 102 [C] (GER)</td>
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<td>GenEd 111 [A] (GER)</td>
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<td>Math 140 [N] or 171 [N] (GER)²</td>
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**Second Year**

<table>
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<tbody>
<tr>
<td>Geol 210 [P] (GER)</td>
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<td>Geol 350 [M]</td>
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<tr>
<td>Math 172, Cpt S 121, or Stat 412</td>
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<td>Phys 101 [P] or 201 [P] (GER)</td>
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**Second Term**

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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Biological Sciences [B] (GER)</td>
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<tr>
<td>Geol 356</td>
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<td>Phys 102 [P] or 202 [P] (GER)</td>
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<td>Complete Writing Portfolio</td>
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**Third Year**

| Year 2, Summer Session: Geol 307 [M] | 3 |

**Third Year**

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<td>Geol 315</td>
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<td>Geol 320</td>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>Social Sciences [S,K] (GER)</td>
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**Second Term**

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<td>EconS 102 [S] (GER)</td>
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<td>Geol 340 [M]</td>
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**Third Term**

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Fourth Year

First Term

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<tbody>
<tr>
<td>Foreign Language, if necessary</td>
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<tr>
<td>Geology Electives</td>
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<td>Elective</td>
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Second Term

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<th>Course</th>
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<td>Arts &amp; Humanities [H,G], Intercultural Studies</td>
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<tr>
<td>[I,G,K], or Social Sciences [S,K] (GER)</td>
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</tr>
<tr>
<td>Foreign Language, if necessary</td>
<td>4</td>
</tr>
<tr>
<td>Geology Elective</td>
<td>3</td>
</tr>
<tr>
<td>Tier III Course (GER)</td>
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Minors

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

ES/RP

101 [B] Environment and Human Life 4
(3-3) Interactions between humans and their environment; multidisciplinary introduction to environmental concepts and concerns.

174 Introduction to Meteorology and the Atmospheric Environment 3 Same as C E 174.

275 Watersheds and Communities 3
Prereq ES/RP 101. Introduction to basic concepts in hydrology, aquatic ecology, and sustainability.

285 The Science and Policy of Climate Change 3
Prereq ES/RP 101. The science of the climate system; the case for reducing greenhouse gas emissions, and the best policies to do so.

301 Forest and Range Plant Resources I 3
(2-3) Prereq NATRS 300 or c/. Same as NATRS 301.

303 (403) Environmental Geology 3
Prereq Geol 101 or 102. Same as Geol 303.

310 Modeling the Environment 4 (3-3)
Construction and testing of computer simulation models of environmental systems. Cooperative course taught by WSU, open to UI students (ENVS 210).

311 Natural Resource Economics 3
Rec EconS 101. Same as EconS 330.

335 [M] Environmental Policy 3

404 [M] The Ecosystem 3
Prereq Chem 345; Phys 102 or 202. Rec Biol 372. Ecosystem organization and processes; theory and applications to contemporary environmental problems.

406 Introduction to Radiological Science 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.

410 [M] Global Biogeochemistry 3
Prereq Chem 106 with a C or better. Cycles of biogeochemically important elements and anthropogenic changes to those cycles in terrestrial and aquatic environments on a global scale. Field trip required. Credit not granted for both ES/RP 410 and 510.

411 [M] Limnology and Aquatic Ecosystem Management 3 (2-3)
Prereq Biol 102 or 120; Chem 101. Same as NatS 411.

412 Natural Resource and Environmental Policy and Law 3
Prereq junior standing or permission of instructor. Same as NATRS 438.

414 Environmental Biophysics 2
Prereq Math 107. Same as SoilS 414. Credit not granted for both ES/RP 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/.. Same as SoilS 415. Cooperative course taught by WSU, open to UI students (BIOL 436).

416 Radiation Biology 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.

420 Field and Laboratory Techniques in Environmental Science 2 (1-3)
Prereq Biol 372; Chem 105. Fundamentals and hands-on experience on the use of field and laboratory techniques and instruments utilized in environmental science. Field trips required.

425 Economic Analysis of Environmental Policies 3
Prereq Ag Ec 201 or Econ 101. Same as EconS 431.

435 Resolving Environmental Conflicts 4 (3-3)
Prereq junior standing, two social science courses. Same as CRS 435. Credit not granted for both ES/RP 435 and 535.

444 Environmental Assessment 4

445 Hazardous Waste Management 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. Cooperative course taught by WSU, open to UI students (ENVS 445).

463 Water in the Environment 3
Math 140 or Phys 101 or by permission of instructor. Water flows in the natural environment, including cloud formation, rainfall, evaporation, infiltration, groundwater, river flows, lakes, estuaries, mixing, and erosion.

464 Introductory Physical Oceanography 3
Prereq Math 140 or Phys 101. Climate, ocean currents, waves, mixing, and erosion, driven by salinity, temperature, winds, gravity, and earth’s rotation.

465 Aquatic Microbial Ecology 2
Prereq Biol 372 and permission of the instructor. Biological, ecological and environmental impact of microbes in aquatic systems. Credit not granted for both ES/RP 465 and 565.

466 Environmental Psychology 3
Prereq Psych 105. Same as Psych 466.

469 Ecosystem Ecology and Global Change 3
Prereq Biol 372; Chem 106. Same as Biol 469. Credit not granted for both ES/RP 469 and 569.

480 Advanced Resource Economics 3
Prereq Math 201, 202. Same as EconS 432.

481 Economics of Environmental Issues 3
Prereq Econ 101; Rec Econ 301. Same as Econ 481.

482 Special Topics: Study Abroad V 1-15
May be repeated for credit; cumulative maximum 100 hours. S, F grading.

486 ArcGIS and Geospatial Analysis 4 (2-6)
Prereq Biol 120, Geol 101, or SoilS 201. Same as SoilS 468. Credit not granted for both ES/RP 486 and 586.

490 Special Topics V 1-3
May be repeated for credit; cumulative maximum 6 hours.

491 Senior Seminar 1
Prereq senior in environmental science and regional planning.

492 Special Topics V 1-3
May be repeated for credit; cumulative maximum 12 hours.

495 Undergraduate Internship V 1 (0-3) to 12 (0-36)
May be repeated for credit; cumulative maximum 12 hours. By interview only. Practical experience in appropriate agencies; for career students in environmental science.

499 Special Problems V 1-4
May be repeated for credit. S, F grading.
504 Ecosystem Management 3 Analysis of ecosystem processes; dual emphasis on ecological principles and development of methods and concepts to evaluate policies for management.

508 Environmental Spatial Statistics 3 (2-2) Prereq Stat 412. Same as SoilS 508. Cooperative course taught by WSU, open to UI students (REM 508).

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. Environmental transport, fate and effects of radioactive and hazardous materials.


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.

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 (ENVS 545).

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, open to WSU students (LAW 947).

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 (EnvS 550).

558 Pesticide Topics 1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Same as Entom 558.

569 Ecosystem Ecology and Global Change 3 Prereq graduate standing. Same as Biol 569. Graduate-level counterpart of ES/RP 469; additional requirements. Credit not granted for both ES/RP 469 and 569.

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 ArcGIS and Geospatial Analysis 4 (2-6) Same as SoilS 586. Graduate-level counterpart of ES/RP 486; additional requirements. Credit not granted for both ES/RP 486 and 586.

592 Special Topics V 1-4 May be repeated for credit; cumulative maximum 6 hours. Cooperative course taught by WSU, open to UI students (GEOG 590).

593 Seminar in Environmental Science and Regional Planning 1 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 4 hours.

594 Environmental and Natural Resources Issues and Ethics V 2-3 May be repeated for credit; cumulative maximum 7 hours. Prereq senior standing. Same as NATRS 594.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

GEOLOGY

Geol

101 [P] Introduction to Geology 4 (3-3) Introductory physical geology for non-science majors; emphasis on western US. Credit not granted for both Geol 101 and 102.

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 both Geol 101 and 102.

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.

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.

285 Introduction to Astrobiology 3 Origins, distribution, evolution and future of life in the universe.

303 (403) Environmental Geology 3 Prereq Geol 101 or 102. Geological hazards and geologic problems associated with human activities. Optional field trip.

307 Geology Field Camp 3 (0-9) Prereq Geol 101, 210. Introduction to geologic field methods; basic geologic mapping.

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 (GEOG 490).

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.

320 Sedimentary Petrology and Sedimentation 3 (2-3) Prereq Geol 210; Geol 350. Sedimentary rock composition and origins applying fundamental principles of sedimentology. Field trip 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.

470 Introduction to Economic Geology 3 (2-3) Prereq Geol 340, 350. Genensis, 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).

475 Groundwater 3 (2-3) Prereq BSYE 351, C E 317 or Geol 315; and Math 140 or 172 or c/. Introduction to groundwater occurrence, movement, quality, and resource management, emphasizing physical and biogeochemical principles. Field trip required.

480 Introductory Geochemistry 3 Prereq Geol 106, Geol 350. The chemistry of Earth materials and processes.

490 Undergraduate Research V 1-3 Prereq Geol 101, 210. Research and advanced laboratory experience with a geology faculty member; oral presentation and written thesis.

498 Seminar 1 May be repeated for credit; cumulative maximum 3 hours. Prereq major in geology or related area. Field trips required. Credit not granted for both Geol 498 and 598 S, F grading.

499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

500 Geophysics 4 (3-3) Prereq Geol 340. Theory and application of geophysical methods for the study of the earth and other planetary bodies. Credit not granted for both Geol 405 and 505.

506 Basin Analysis 3 Prereq Geol 320. Characteristics of sedimentary basins and methods for studying them. One two-day field trip required. Credit not granted for both Geol 406 and 506. Cooperative course taught by UI, open to WSU students (GEOL 407).

518 Geomicrobiology 3 The role of microorganisms in the formation and dissolution of rocks and minerals; microbial processes in ground and surface water environments, extreme environments and the deep subsurface; early life on Earth and the possibility of life on other planetary bodies. Two additional research assignments and an additional question on two exams required for graduate credit. Credit not granted for both Geol 418 and 518. Cooperative course taught by UI, open to WSU students (GEOL 518).

520 Advanced Topics in Sedimentology 3 (2-3) May be repeated for credit; cumulative maximum 6 hours. Prereq Geol 320. Modern aspects of sedimentary rocks. Field trip required. Cooperative course taught by WSU, open to UI students (GEOL 520).

521 Clastic Depositional Systems 3 (2-3) Prereq Geol 320. Clastic sedimentary environments; architectural elements and facies analysis. Field trip required. Cooperative course taught by WSU, open to UI students (GEOL 521).

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; diagenesis of carbonate rocks. Field trip required. Cooperative course taught by WSU, open to UI students (GEOL 529).

538 Orogenic Systems 3 Prereq Geol 340. Field-base courses examining tectonic processes active in the northern Cordillera. Field trip required and final research paper. Cooperative course taught jointly by WSU and UI (GEOL 538).

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 548).

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; elastic theory. Field trip required. Cooperative course taught by UI, open to WSU students (GEOL 542).

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 fundamental concepts of fault mechanics, including brittle failure, rock friction, fluid pressure effects, and variable rheological behaviors; examination of internal fault architectures to distinguish fault zone styles; stress, strain, and displacement fields addressed from a theoretical perspective and the application of geodetic measurement techniques and secondary structure analyses; emphasis on interpretation of fault slip distributions and relationship to rock properties, fault shape, and mechanical interaction in echelon fault systems; such insights placed in context of 3-D fault systems geometric evolution as well as earthquake behavior and seismic hazard recognition. One weekend field trip. Cooperative course taught by UI, open to WSU students (GEOL 546).

549 Advanced Mineralogy 3 Prereq Chem 106, Geol 355. 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) 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. Applications of continuum mechanics and fluid dynamics to generation, rise, storage, and eruption of magmas. Cooperative course taught by UI, open to WSU students (GEOL 554).

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).

562 Watershed Biogeochemistry 3 Prereq general chemistry. Sources, transformations, fates and impacts of biogeochemically important compounds as they move downstream through watersheds to the coastal zone.

567 Volcanology 3 (2-3) Prereq Geol 356. Graduate-level counterpart of Geol 467; additional requirements. Credit not granted for both Geol 467 and 567. Cooperative course taught by UI, open to WSU students (GEOL 567).

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 (HYDR 566).

583 Radiogenic Isotopes and Geochronology 3 Prereq graduate standing. Radiogenic isotopes and their uses as chronometers (radiometric dating) and as tracers of earth evolution and differentiation. Cooperative course taught jointly by WSU and UI (GEOL 583).

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.

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 4 hours. Prereq major in Geol or related field. Graduate-level counterpart of Geol 498; additional requirements. Credit not granted for both Geol 498 and 598. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

School of Economic Sciences

www.ses.wsu.edu
Hulbert 101
509-335-5555


The School of Economic Sciences (SES) offers programs leading to the degree of Bachelor of Science in Economics with options in International Trade & Development, Graduate School Preparation, Financial Markets, Environmental and Resource Economics, Business Economics, Agricultural Economics, and Economic Analysis and Policy. Graduate degrees offered include the Master of Science in Applied Economics, Doctor of Philosophy (Economics and Agricultural Economics).

The School also advises the Bachelor of Science in Agricultural and Food Systems, the Agricultural and Food Business Economics major. The School of Economic Sciences also advises the college-wide Agricultural and Food Business Economics major. This major focuses on agricultural business with an emphasis in economics. Please visit http://afs.wsu.edu for more information.

Undergraduate Program

The course of study for the Bachelor of Science in Economic Sciences is sufficiently broad to accommodate students with a variety of interests and career goals. It provides training for students interested in business, law, finance, agricultural markets, environmental policy and natural resources, and international trade and development. The program also gives students the preparation needed for graduate study in business, law, agricultural economics, and general economics. The program provides students the flexibility to choose courses outside the school of economic sciences while still meeting degree requirements and allows students to pursue double majors in such fields as business or political science.

The degree requires a set of core courses taken by all School of Economic Sciences undergraduate students. These courses develop a deep understanding of the basic principles of economics and the research methods needed for economic analysis in any field of economic sciences. Students then branch out to further apply the core tools in one of seven option areas:

• The agricultural economics option 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.

• The environmental and resource economics option trains students to make decisions while carefully weighing the trade-offs between protecting, restoring, developing, and allocating natural resources.

• The business economics option trains students to use economic concepts to better understand the management, marketing, and finance problems faced by businesses operating in a market system.

• The financial markets option provides students with a solid, analytical training in the substantial overlap between economics and finance. The option requires coursework that focuses on the analysis of financial markets.

• The international trade and development option applies economic and institutional analysis to the problems of international economics, economic growth, and the special economic challenges faced by low income countries.

• The economic analysis and policy option emphasizes the analytical skills used in making decisions involving government programs and tax policy.

• The graduate school preparation option guides students to coursework in economic theory, statistics, and mathematics needed for success in graduate work in business, agricultural economics, and general economics.

In all options students combine course work in economic sciences with courses outside the school of economic sciences. According to their individual interests, students supplement their economic sciences training with elective coursework in the areas of business, agriculture, mathematics, history, and political science.

The School of Economic Sciences also advises the college-wide Agricultural and Food Business Economics major. This major focuses on agricultural business with an emphasis in economics. Please visit http://afs.wsu.edu for more information.

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 economics, agribusiness economics, or environmental & resource economics & management.

The school also offers a minor in sustainable development that 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.

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 economic sciences by the end of their sophomore year should have satisfactorily 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 planning to pursue graduate study in economics or agricultural economics are urged to select the graduate school preparation focus and consult with a faculty member in 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 and mathematics. 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: EconS 322, 324, 327, 425, 451; B Law 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 S 340, Mktg 360, EconS 352 and Econ 452.
- Economics and Agricultural Economics: Math 171 and 220 are recommended to satisfy the major’s math requirements. Calculus through Math 273 is also useful.

**Employment Opportunities**

The undergraduate program provides 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. School of Economic Sciences graduates compete favorably for jobs in government, business and charitable organizations, using their strong analytical skills to offer a different perspective for problem-solving and decision-making. Recent graduates have been employed in banking, agribusiness, finance, industry, non-profit organizations, government agencies, and at universities. Many are working in foreign countries.

**Graduate Program**

The Master of Sciences in Applied Economics provides students with an excellent foundation in the theory and methods of economics along with applications in their choice of at least two Ph.D. fields. To further strengthen their quantitative training, students may simultaneously pursue a Master of Science in statistics.

**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.

**AGRICULTURAL ECONOMICS**

(120 HOURS)

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**Business Economics**

(120 HOURS)

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1 Alternative to Math 201 and 202 is Math 171 and 220.
2 At least one elective must satisfy the American Diversity [D] GER.
### Economic Sciences

#### Fourth Year

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2. At least one elective must satisfy the American Diversity [D] GER.

#### First Term

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1. Alternative to Math 201 and 202 is Math 171 and 220.
2. At least one elective must satisfy the American Diversity [D] GER.

### Economic Analysis and Policy

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### Environmental and Resource Economics

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### Financial Markets

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1. Alternative to Math 201 and 202 is Math 171 and 220.
2. At least one elective must satisfy the American Diversity [D] GER.
EconS 483, 495, 497, or 499  3
Engl 402 [W] (GER)  3
Electives  3

Second Term
Hours
EconS 400-level Elective  3
EconS 490 [M]  3
EconS Option Elective  3
Tier III Course [T] (GER)  3
Electives  3

1 Acceptable alternatives are Math 140, 171, 202, or 206.
2 Alternative to Math 201 and 202 is Math 171 and 220.
3 At least one elective must satisfy the American Diversity [D] GER.

GRADUATE SCHOOL PREPARATION (120 HOURS)

First Year

First Term
Hours
EconS 101 [S] or 102 [S] (GER)  3
Engl 101 [W] (GER)  3
GenEd 110 [A] or 111 [A] (GER)  3
Math 171 [N] (GER)  3
Science [B,P,Q] (GER)  3 or 4

Second Term
Hours
Arts & Humanities [H,G] (GER)  3
Biological Sciences [B] (GER)  3 or 4
EconS 101 [S] or 102 [S] (GER)  3
GenEd 110 [A] or 111 [A] (GER)  3
Math 172  4

Second Year

First Term
Hours
ComSt 102 [C], 324 [C], or H D 205 [C] (GER)  3
EconS 301  3
Intercultural Studies [L,G,K] (GER)  3
Math 273  2
Physical Sciences [P] (GER)  3 or 4

Second Term
Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER)  3
EconS 302  3
Math 220  3
Social Sciences [S,K] (GER)  3
Stat 212 [N] (GER) or MgtOp 215  3

Third Year

First Term
Hours
EconS 300-400-level Elective  6
EconS 311 [M]  3
Math 301 or Elective  3
Math 315  3

Second Term
Hours
EconS 300-400-level Elective  3
Math 401 or Elective  3
Electives  8

Fourth Year

First Term
Hours
EconS 420  3
EconS 483, 495, 497, or 499  3
EconS 525, Stat 360, or 443  3
EconS 526  3
EconS 527 or Math 420  3

Second Term
Hours
EconS 400-level Elective  3
EconS 490 [M]  3
Engl 402 [W] (GER)  3
Tier III Course [T] (GER)  3
Electives  3

1 Math 171 and 220 are required.
2 At least one elective must satisfy the American Diversity [D] GER.

INTERNATIONAL TRADE & DEVELOPMENT (120 HOURS)

First Year

First Term
Hours
EconS 101 [S] or 102 [S] (GER)  3
Engl 101 [W] (GER)  3
GenEd 110 [A] or 111 [A] (GER)  3
Math 201  3
Science [B,P,Q] (GER)  3 or 4

Second Term
Hours
Arts & Humanities [H,G] (GER)  3
Biological Sciences [B] (GER)  3 or 4
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
Hours
ComSt 102 [C], 324 [C], or H D 205 [C] (GER)  3
EconS 301  3
Intercultural Studies [L,G,K] (GER)  3
Math 273  2
Physical Sciences [P] (GER)  3 or 4

Second Term
Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER)  3
EconS 300-400-level Elective  3
EconS 302  3
Electives  2
Stat 212 [N] (GER) or MgtOp 215  4
Complete Writing Portfolio

Third Year

First Term
Hours
EconS 300-400-level Elective  3
EconS 311 [M]  3
EconS 327  3
Electives  6

Second Term
Hours
EconS 300-400-level Elective  3
EconS 326  3
Electives  9

Fourth Year

First Term
Hours
EconS 400-level Elective  3
EconS 483, 495, 497, or 499  3
EconS Option Requirement  3
Engl 402 [W] (GER)  3
Electives  3

Second Term
Hours
EconS 490 [M]  3
EconS Option Requirement  3
Tier III Course [T] (GER)  3
Electives  6

1 Alternative to Math 201 and 202 is Math 171 and 220.
2 At least one elective must satisfy the American Diversity [D] GER.

Minors

Agribusiness Economics

The minor in Agribusiness Economics requires 18 hours and includes EconS 101; 301 or 305; EconS 330 and 450 or EconS 351 and 451 or EconS 352 and 452; EconS 335; and 3 elective credits in EconS. A 2.00 gpa is required in the minor and no courses may be taken pass/fail. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

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 and 102 (or 198 and a 300/400-level EconS courses), and 302 or 320 are required. In addition, EconS 301 or 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 electives requirement). Only EconS 497 or 499 may be taken pass/fail.

Environmental and Resource Economics

The minor in Environmental and Resource Economics and Management requires 16 hours. The following courses are required: EconS 330, 331, 343, 342 or 343; 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

EconS 101 [S] Fundamentals of Microeconomics
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.

EconS 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.

EconS 198 [S] Economics Honors
3 Introduction to economic theory and policy issues. Open only to students in the Honors College.

EconS 301 Intermediate Microeconomic Theory with Calculus
3 Prereq EconS 101; Math 171 or 202. Calculus-based intermediate microeconomic theory for majors in the School of Economic Sciences.

EconS 302 Intermediate Macroeconomic Analysis
3 Prereq EconS 102; Math 171 or 202. Income, employment, and inflation theory with policy implications.

EconS 305 Intermediate Microeconomics without Calculus
3 Prereq EconS 101. Price determination and market behavior under different market structures and the problems posed for public policy; not calculus-based.

EconS 311 [M] 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.

EconS 320 Money and Banking
3 Prereq EconS 101; EconS 102. Analysis of banking institutions and monetary policy in the US, with comparison to abroad.

EconS 321 Economics of Sports in America
3 Prereq EconS 101. Economic aspects of American sports; fan demand; advertising; team output decisions; league/conference organization; government and sports.

EconS 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.

EconS 323 Labor Economics
3 Prereq EconS 101. Functioning of labor markets; introduction to collective bargaining and labor law.

EconS 324 The Economics of Health Care
3 Prereq EconS 101. The economics of allocating, financing and delivering medical care services.

EconS 325 [M] The Economics of Organization, Contracting, and Law
3 Prereq EconS 101. Examination of the economic and legal aspects of contractual and non-contractual ways of organizing transactions by business.

EconS 326 Aspects of Sustainable Development
3 Prereq EconS 101. Ecological, economical, and sociological aspects of sustainable development.

EconS 327 International Trade and Finance
3 Prereq EconS 101; EconS 102. Analysis and description of international trade flows; commercial policy; multinational firms, foreign exchange markets; open economy macroeconomics; international monetary systems.

EconS 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.

EconS 335 Business Finance Economics
3 Prereq 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.

EconS 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.

EconS 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.

EconS 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.

EconS 391 Special Topics in Economics V 1-3
3 Prereq EconS 101 and 102. Current topics in economics.

EconS 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.

EconS 420 Monetary Theory and Policy
3 Prereq EconS 301; EconS 302. Current issues in monetary economics with a special emphasis on policy.

EconS 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.

EconS 426 Transportation Economics
3 Prereq EconS 301; EconS 311. Transportation economics and relevant transportation modeling; policy issues and concerns.

EconS 427 Economic Development and Underdevelopment
3 Prereq EconS 301; EconS 302. Development theories, policies, and performance of Third World economies; population, land reform, foreign trade, aid, investment, debt, dependency.

EconS 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.

EconS 430 [T] Managing the Global Environment
3 Study of policy and management tools to address environmental issues of global significance.

EconS 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.

EconS 432 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.

EconS 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.

EconS 450 [M] Advanced Farm and Ranch Management
3 Prereq EconS 101. Rec EconS 350. Business and financial principles applied to organization and operation of farms and ranches.

EconS 451 Advanced Food Economics and Marketing
3 Prereq EconS 301 or 305; EconS 311. Institutions, practices, policies, problems, and empirical analysis of food economics and marketing.

EconS 452 [M] Advanced Business Management Economics
3 Prereq EconS 301; EconS 350 or 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.

EconS 453 International Trade and Marketing
3 Prereq EconS 301; EconS 311. Application of economic theory to the analysis of international trade and marketing.

EconS 483 Special Topics: Study Abroad
V 1-15 May be repeated for credit.

EconS 490 [M] Economics Capstone
3 May be repeated for credit; cumulative maximum 6 hours. Prereq Senior in School of Economic Sciences; EconS 301; EconS 302; EconS 311. Integration of economic theory and field courses; assessment.
Econometrics I 3 Prereq EconS 301, 302 and 311. Advanced topics in economics.

Instructional Practicum V 1-3 Prereq by interview only. Academic experience in teaching and tutoring undergraduate courses in economics, S, F grading.

Economics Internship V 2 (0-6) to 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. Permission of the instructor and the director of the School of Economic Sciences required. Professional off-campus internships arranged or coordinated by departmental faculty according to student’s field of specialization. May be repeated for credit; cumulative maximum 12 hours. S, F grading.

Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. Permission of the instructor and the director of the School of Economic Sciences required. S, F grading.

Macroeconomic Theory I 3 Prereq EconS 302; one year of calculus. Introduction to dynamics, growth and investment, overlapping generations models, Ramsey model, consumption and investment.

Microeconomic Theory I 3 Prereq EconS 301 or 305; one year calculus. Microeconomic theory, multivariate optimization, consumer and producer theory, competitive partial equilibrium, introduction to imperfect competition.

Macroeconomic Theory II 3 Prereq EconS 500. Macroeconomic theory, short-run fluctuations and nominal rigidities, monetary economics and inflation, real business cycle models, unemployment international macroeconomics.

Microeconomic Theory II 3 Prereq EconS 501. General equilibrium, welfare economics and social choice, market failure, game theory, economics of information.

Production and Consumption Economics 3 Prereq EconS 502; EconS 503. Advanced duality topics, demand and supply system modeling, financial economics and risk.

Economics for Agricultural Decision Making 3 Prereq admission to the MS in Agriculture. Managerial economics with specific applications to agricultural issues.

Statistics for Economists 3 Prereq college calculus and matrix algebra. Statistical theory underlying econometric techniques utilized in quantitative analysis of problems in economics and finance.

Econometrics I 3 Prereq EconS 510. Single equation linear and nonlinear models; estimation, inference, finite and asymptotic properties, effects and mitigation of violations of classical assumptions.

Econometrics II 3 Prereq EconS 501; EconS 511. Econometric methods for systems estimation; simultaneous equations, discrete and limited dependent variable, panel data, and time series data.

Econometrics III 3 Prereq EconS 502; EconS 503; EconS 512. Linear and non-linear models and maximum likelihood estimation and inference; semi-parametric and parametric methods; limited dependent variable models.

Econometrics IV 3 Prereq EconS 502; EconS 503; EconS 513. Constrained estimation, testing hypotheses, bootstrap resampling, BMM estimation and inference, nonparametric regression analysis, and an introduction to Bayesian econometrics.

Topics in Economic Sciences V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq EconS 501; EconS 502; EconS 511. Current topics in the development and application of the economic sciences.

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 jointly by WSU and UI (AGEC 525).

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 jointly by WSU and UI (AGEC 526).

Mathematics for Economists 3 Prereq graduate standing. Mathematical methods applicable to economic analysis and research. Cooperative course taught jointly by WSU and UI (AGEC 527).

Research Methods V 1-2 May be repeated for credit; cumulative maximum 3 hours. Prereq graduate standing. Prepare and communicate professional-quality research with an emphasis on learning how to identify, develop, write, and present research. Cooperative course taught by WSU, open to UI students (AGEC 529).

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 (AGEC 531).

Economic Analysis of Environmental Policies V 1-2 May be repeated for credit; cumulative maximum 3 hours. Prereq graduate standing. Prepare and communicate professional-quality research with an emphasis on learning how to identify, develop, write, and present research. Cooperative course taught by WSU, open to UI students (AGEC 531).

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 jointly by WSU and UI (AGEC 532).

International Trade and Policy 3 Prereq graduate standing. International trade theories, policies, and research issues related to world trade with emphasis on agricultural commodity markets. Cooperative course taught jointly by WSU and UI (AGEC 533).

Production Economics 3 Prereq EconS 526. Production economics theory and methods applied to problems of production response, economic optimization, technology, policy, risk and dynamics. Cooperative course taught jointly by WSU and UI (AGEC 534).

Applied Industrial Organization 3 Economic and strategic management theories and their relevance to agribusiness decision-making including empirical applications. Cooperative course taught by UI, open to WSU students (AGEC 535).

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.

International Trade 3 Prereq EconS 502; EconS 503; EconS 511. Recent developments in trade theory and policy, including international factor movements, empirical analysis of trade flows and strategic trade policies.

International Development 3 Prereq EconS 502; EconS 503; EconS 511. Structural and two-sector growth models of developing countries and countries in transition; empirical estimation of sources of growth.

Natural Resource Economics 3 Prereq EconS 502; EconS 503; EconS 511. Economic dynamics of natural resource systems.

Environmental Economics 3 Prereq EconS 502; EconS 503; EconS 511. Economic theory for environmental issues; externalities, property rights, and welfare analysis; policy design and implementation; non-market valuation and cost/benefit analysis.

Public Sector Economics 3 Prereq EconS 502; EconS 503; EconS 511. Public sector and public choice economics, including government debt and tax policy, public decision making, bureaucratic behavior and rent-seeking, with applications.

Applications in Microeconomic Topics 3 Prereq EconS 502, 503, 511. Applied topics in healthcare, sports, transportation and other markets.

Theory of Industrial Organization 3 Prereq EconS 502, 503, 511. Theory of market structure and firm behavior, including price and non-price competition, information and strategic behavior, and technological change.

Advanced Topics in Financial Economics V 1-6 May be repeated for credit; cumulative maximum 12 hours. Prereq EconS 500; EconS 501. Same as Fin 596.

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.

Special Topics in Economics 3 Prereq graduate standing.

Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Master’s Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

The department offers courses of study leading to a Bachelor of Arts in Sports Management, Bachelor of Science in Athletic Training, or Bachelor of Science in Kinesiology (with majors in movement studies, and health and fitness education); and an undergraduate minor in Sport Management. Masters degrees (Master of Education, Master of Arts in Education) are offered in the areas of educational leadership, counseling, educational psychology, and sport management. The Doctor of Philosophy (Education) is offered with specializations in educational leadership, or counseling psychology. The Doctor of Education is offered with a specialization in educational leadership.

The Department of Educational Leadership and Counseling Psychology, housed 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 Learning and Performance Research Center serves school 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.

Application for Graduate Study

Students who plan to work towards 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 (GRE). 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 communication. Additional information on the areas of specialization can be obtained from the department. A minimum 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 skills.

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 sport management courses is 60 hours of coursework and certification as a Sport Management major or Sport Management minor. Additional prerequisites for specific courses are listed in the course descriptions. The program director must approve any exceptions to these requirements.

Bachelor of Science in Kinesiology and Bachelor of Science in Athletic Training

The department offers the Bachelor of Science in Athletic Training, which is a competitive admission program with an application process. In addition, two kinesiology majors lead to the Bachelor of Science in Kinesiology (movement studies and health and fitness education) and share kinesiology and health courses. Athletic training and kinesiology majors are 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 GERS courses used as prerequisites for departmental courses. All letter-ranged 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).

Students who plan to work towards 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 (GRE). 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 communication. Additional information on the areas of specialization can be obtained from the department. A minimum 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 skills.

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 sport management courses is 60 hours of coursework and certification as a Sport Management major or Sport Management minor. Additional prerequisites for specific courses are listed in the course descriptions. The program director must approve any exceptions to these requirements.

Bachelor of Science in Kinesiology and Bachelor of Science in Athletic Training

The department offers the Bachelor of Science in Athletic Training, which is a competitive admission program with an application process. In addition, two kinesiology majors lead to the Bachelor of Science in Kinesiology (movement studies and health and fitness education) and share kinesiology and health courses. Athletic training and kinesiology majors are 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 GERS courses used as prerequisites for departmental courses. All letter-ranged 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

Athletic Training Degree Program (120 Hours)

The athletic training education program is currently accredited by the Commission on Accreditation of Athletic Training Education (CAATE). The athletic training major is designed to provide students with the necessary academic and clinical competencies required to be eligible for certification by the Board of Certification. All students majoring in athletic training will complete the kinesiology core, the athletic training major course work and a minimum of 1200 hours of clinical experience. Due to the intensity and availability of the clinical internship, the program admits a limited number of students. Acceptance into the athletic training education program (ATEP) is required to certify athletic training as a major and to complete the degree requirements for graduation.

Academic requirements for this application
process include but are not limited to 1) a grade of C or better in MvtSt 262, Ath T 266, Ath T 267 and HF 263; 2) a minimum cumulative collegiate GPA of 2.75 or better including the current semester; and 3) current credentialing in CPR/AED for the Professional Rescuer. 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 may complete the application process and be provisionally admitted into the ATEP. 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 experience is guided by progressive clinical competencies and technical standards that assess the student’s progress. A minimum of 1200 hands-on clinical experience hours are arranged over six consecutive semesters with a parallel educational cooperative partnership involving the Department of Intercollegiate Athletics and several off-campus sites including clinical experiences 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 ATEP. Specific policies and procedures governing the clinical experience are available through the athletic training advisors and the ATEP Student Handbook. Kinesiology Core courses required for athletic training, health and fitness teaching, and movement studies include: Ath T 311, HF 361, 484, MvtSt 199, 262, 264, 362, 380, 461, Biol 251.

### First Year

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<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
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### Second Year

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### Third Year

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<td>Engl 101 [W] (GER)</td>
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<td>Ath T 493</td>
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<tr>
<td>Tier III Course (GER)</td>
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</table>

**HEALTH AND FITNESS TEACHER CERTIFICATE (BS KINESIOLOGY) (136 HOURS)**

This major program prepares individuals to teach physical education, health and fitness at the elementary and/or secondary levels. At all levels of instruction, individuals will acquire knowledge and skills necessary to maintain an active life involving movement, physical fitness and proper nutrition. Students will participate in activities that are designed to help them understand and value important health and fitness concepts and the contributions they make to a healthy lifestyle. Kinesiology Core courses required for athletic training, health and fitness teaching, and movement studies include: Ath T 311, HF 361, 484, MvtSt 199, 262, 264, 362, 380, 461, Biol 251.

### Minimum Criteria for Certification

Because of the intensity and limited availability of the practicum teaching, the program admits a limited number of students. Acceptance into the teacher certification program (see Teaching and Learning) is required to certify in health and fitness and to complete the degree requirements for graduation. Additional academic requirements for the health and fitness application process include:

1. Minimum WSU cumulative GPA of 2.75.
2. Complete Biol 102, Biol 251, Chem 101 and MvtSt 262 with a grade of C or better.
3. Completion of the minimum criteria for admission to the undergraduate teacher preparation program (see Teaching and Learning for admission requirements). Students are advised to consult with College of Education Student Services advisors early in their academic careers for application procedures. Teacher preparation for health and fitness is offered at the Pullman campus only.

**First Year**

<table>
<thead>
<tr>
<th>Course</th>
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<td>Engl 101 [W] (GER)</td>
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<td>GenEd 111 [A] (GER)</td>
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### Second Year

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### Third Year

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128
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### MOVEMENT STUDIES DEGREE PROGRAM (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 is competitive. Application dates 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 program 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.

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 is competitive. Application dates 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 program 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 WSU 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

**First Term**

<table>
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<th>Course</th>
<th>Hours</th>
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<tbody>
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Complete Writing Portfolio

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Complete Writing Portfolio

### SPORT MANAGEMENT DEGREE PROGRAM (120 HOURS)

WSU seeks to prepare the best possible sport management professionals and therefore seeks highly qualified individuals. Admission to, or continued enrollment in the sport management program may be denied to any candidate who does not meet the minimum criteria.

Applicants who meet the minimum requirements are eligible for consideration, but not assured admission. Enrollment is limited and admission is competitive. Application dates 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 Sport Management major prior to taking any 300- or 400-level Sport Management coursework. 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. 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

**First Term**

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>MvtSt 199</td>
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**Second Term**

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### Second Year

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### Third Year

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**Second Term**

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<td>SpMgt 394</td>
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<td>Electives</td>
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Complete Writing Portfolio

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Minors

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

Ath T

266 Care and Prevention of Athletic Injuries 3 Prereq MvtSt 262 or c//. Prevention, recognition, and management of common sport related injuries and illnesses.

267 Techniques in Athletic Injuries 2 Prereq Ath T 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 Athletic Training Modalities 3 Prereq Ath T 266. Advanced theory and techniques of modality use in athletic training.

291 Athletic Training Clinical Internship I 2 (0-4) 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; assignments include a case analysis of a UI or WSU athlete and evaluation and critical review of related research. (Fall only). Cooperative course taught by UI, open to WSU students (FCS 305).

311 Strength Training 3 Prereq MvtSt 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 Athletic Training Rehabilitation 3 Prereq Ath T 266. Advanced injury rehabilitation theory and techniques in athletic training.

365 General Medical Aspects in Athletic Training 3 Prereq Ath T 266. Current medical issues pertaining to athletic training including sport pharmacology, physiological considerations, common illnesses and special concerns.

392 Athletic Training Clinical Internship II 2 (1-3) 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.

469 [M] Athletic Training Organization and Administration 3 Prereq Ath T 266. The organization and administration of athletic training programs.

490 Instructional Practicum V V 1-4 May be repeated for credit. S, F grading.

493 Athletic Training Clinical Internship III 2 (0-4) May be repeated for credit; cumulative maximum 4 hours. By interview only. Advanced techniques in management of sport injury/illness under supervision of a certified athletic trainer.

499 Special Problems V V 1-4 May be repeated for credit; cumulative maximum 6 hours. S, F grading.

COUNSELING PSYCHOLOGY

CoPsy

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 (PEP 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 (PEP 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.

517 Diagnoses, Psychopathology and Counseling Psychology 3 Prereq CoPsy 511 and 512; graduate standing. Psychopathology and the application of counseling theories to diagnoses, case conceptualization, assessments, treatment plans 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 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. Cooperative course taught by UI, open to WSU students (PSYCH 573).

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 541).

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, ADHD, ID, 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 4 (3-3) May be repeated for credit; cumulative maximum 16 hours. Prereq CoPsy 512, 513, 515; S27 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 4 (3-3) May be repeated for credit; cumulative maximum 16 hours. Prereq CoPsy 512, 513, 518; 515 or c//; S27 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.


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 4 (3-3) May be repeated for credit; cumulative maximum 16 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 May be repeated for credit; cumulative maximum 6 hours. Prereq Initial Counselor Certification; equivalent of 180 full days of school counselor experience. Peer review requirements for continuing level ESA Counselor Certification.

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 (0-6) to 4 (0-12) 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 V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

EDUCATIONAL ADMINISTRATION AND SUPERVISION

Ed Ad

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 Rec teaching experience. Analysis and evaluation of instructional models with emphasis on information processing; implications for changing teaching style.

514 Basic Principles of Curriculum Design 2-3 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 2-3 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 2-3 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.

531 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours. Recent topics in education responding to shifting demands and skills needed by parents, teachers, school administrators and community leaders.

532 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours. Recent topics in education responding to shifting demands and skills needed by parents, teachers, school administrators and community leaders.

534 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours. Recent topics in education responding to shifting demands and skills needed by parents, teachers, school administrators and community leaders.

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 May be repeated for credit; cumulative maximum 6 hours. 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.

565 Practicum in Higher Education 3 (0-9) Prereq graduate student with 15 hours of completed course work in education. Selected supervised experiences in general higher education and student affairs settings 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. Exposes 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.

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 V 3 (0-9) to 6 (0-18) 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 V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

EDUCATIONAL PSYCHOLOGY

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 Classroom Assessment, Secondary 3 Prereq T & L 464, 465, 466; c/t T & L 467, 469; admission to the teacher preparation program. Principles and practice of high-quality classroom assessment in secondary schools.

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 jointly by WSU and UI (ED 572).

509 Educational Measurements: Test Development and Assessment V 2-3 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.

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.


564 Qualitative Research 3 Prereq EdRes 563. Same as EdRes 564.


568 Research Methods II 3 Prereq EdPsy 505, 563. Integration and application of research skills in writing proposals, dissertations, papers for publication; interpreting, critiquing, and synthesizing research studies.

569 Seminar in Quantitative Techniques in Education 2 or 3 May be repeated for credit; cumulative maximum 6 hours. Prereq EdPsy 565. Application of parametric and nonparametric statistics, data processing using computer packages in educational research.

570 Introduction to Program Evaluation 3 Prereq EdPsy 505. Introduction to strategies and techniques for evaluation of educational and social programs.

571 Advanced Program Evaluation 3 Prereq EdPsy 570. Advanced methods and techniques of program evaluation.

597 Educational Psychology Internship V 2 (0-6) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Supervised internship experience in educational psychology, measurement and evaluation. S, F grading.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.
800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

EDUCATIONAL RESEARCH
EdRes

562 Epistemology, Inquiry, and Representation 3 Prereq doctoral standing; EdPsy 505 or c/. Epistemological assumptions and methodological strategies of research.

563 Principles of Research 3 Prereq 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 563. Theoretical underpinnings of qualitative research; familiarity with published qualitative research in education; practical research skills.

565 Quantitative Research 3 Prereq EdPsy 508; EdRes/EdPsy 563. Statistical literacy in educational research; parametric and non-parametric methods.

566 Research Seminar 1 May be repeated for credit; cumulative maximum 4 hours. Prereq doctoral student. Presentation and analysis of research; professional development in research presentation. S, F grading.

HEALTH AND FITNESS
HF

263 Emergency Response 2 (1-3) 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.

481 Health Education Methods 3 Prereq certified teacher education major; HF 361; T&L 464 or c/o; 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/o; 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. Cooperative course taught by WSU, open to UI students (PE 320).

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 May be repeated for credit; cumulative maximum 6 hours. 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 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

KINESIOLOGY

Kin


MOVEMENT STUDIES

MvtSt


262 Human Anatomy 4 (3-3) Comprehensive survey of the structure and organization of the human body; emphasis on skeletal muscle, 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.

392 Practicum in Physical Education V 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.

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 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

SPORT MANAGEMENT

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 of Sport Management 3 Prereq Cor 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  
Prereq certified SpMgt major, minor, 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 1-6 Prereq sophomore standing; by interview only. Paid or volunteer, off-campus work experience with a sport organization. S, F grading.

464 Sport Marketing  
Prereq certified SpMgt major; SpMgt 365. An examination of sport as a consumer product and as a medium by which to sell consumer products.

468 [M] Managing Sport Organizations  
Prereq certified SpMgt major; SpMgt 367; senior standing. Analysis of management processes and structures of sport organizations.

488 Current Trends in Sport Management  
2 Prereq certified SpMgt major; SpMgt 367; senior standing. Current trends and issues; research resources; professional presentations.

489 Theory and Application in Sports Event Management  
Prereq certified SpMgt major; SpMgt 367; senior standing. Investigation and application of the components of the sport management profession.

490 Internship Seminar  
Prereq certified SpMgt major; SpMgt 365; SpMgt 367; senior standing; by interview only. Overview of policies and requirements; guidance through site selection and application process; communication skills for the business/sport environment. S, F grading.

491 Internship  
V 10 (0-30) to 12 (0-36) Prereq certified SpMgt major; SpMgt 488; SpMgt 490. By interview only. Supervised practicum in agency or business. S, F grading.

496 Special Topics  
V 1-3 May be repeated for credit; cumulative maximum 6 hours. Special topics in sports studies.

497 Special Topics  
V 1-3 May be repeated for credit; cumulative maximum 6 hours. Special topics in sport studies.

499 Special Problems  
V 1 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

540 Current Issues in Sport Management  
3 Prereq SpMgt 464 or equivalent, or permission of instructor. Principles of sport marketing including public relations, corporate sponsorship, and service quality for sport organizations.

564 (576) Marketing of Sport Events and Programs  
Prereq SpMgt 464 or equivalent, or permission of instructor. Principles of sport marketing including public relations, corporate sponsorship, and service quality for sport organizations.

567 (574) Social and Cultural Issues of Physical Activity and Sport  
Prereq SpMgt 467 or equivalent; or permission of instructor. Sport and physical activity as cultural forms, including the examination of subcultures, stratification, socialization and power relations.

568 (575) Administrative Concepts in Sport Organizations  
Prereq SpMgt 468 or equivalent; or permission of instructor. Effective management for sport programs. Analysis of dynamic management process necessary for improvement of productivity in sport organizations.

573 Philosophical Perspectives of Sport and Physical Activity  
3 Prereq SpMgt 365 or equivalent; or permission of instructor. Ontological, ethical, aesthetic views of physical activity.

577 Law and Risk Management in the Sport Industry  
3 Prereq SpMgt 377 or equivalent; or permission of instructor. Use of risk management perspective to explore the law as it applies to the management concerns of sport organizations.

578 Sports in Society  
3 Prereq SpMgt 367 or equivalent, or permission of instructor. The social significance of sports; sociology of sport research.

600 Special Projects or Independent Study  
1 (0-3) to 18 (0-54) May be repeated for credit. Prereq graduate standing or permission of instructor. S, F grading.

700 Master’s Research, Thesis, and/or Examination  
V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination  
V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination  
V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

School of Electrical Engineering and Computer Science

www.eecs.wsu.edu
EME 102
509-335-6602

Huie-Rogers Chair in Computer Science, Professor, and Director, B. Shiraiz; Huie-Rogers Endowed Chair in Computer Science and Professor, D. Cook; Boeing Centennial Chair in Computer Engineering and Professor, J. Delgado-Frias; Distinguished Professor in Power, A. Bosc; Distinguished Professor in Electromagnetics, R. Olsen; Boeing Distinguished Professor, C. Liu; Professors, S. Broschat, T. Fischer, L. Holder, S. Hudson, M. Osman, J. Ringo, A. Saberi, V. Venkatasubramanian, K. Wang; Associate Professors, D. Bakken, B. Betzer, Z. Dong, C. Hauser, D. Heo, C. Hundhausen, G. LaRue, R. Lewis, J. Miller, P. Pande, P. Pedrow, S. Roy, J. Schneider, K. Sivakumar; Assistant Professors, A. Kalyanaraman, M. Kim, A. Srivastava, L. Tan; Professors Emeriti, C. Mosher, G.ower, Lecturer, C. Cole; Instructors, J. Feo, J. Hagemeister, T. Hanshaw, A. O’Fallon, T. Yap.

The School of Electrical Engineering and Computer Science offers courses of study leading to the degrees of Bachelor of Science in Electrical Engineering (BSEE), Computer Engineering (BSCptE), or Computer Science (BSC), Bachelor of Arts in Computer Science (BACS), Master of Science in Electrical Engineering (MSEE), Computer Engineering (MScptE), or Computer Science (MSC), and Doctor of Philosophy. The programs leading to the BSEE and BSCptE are accredited by the Engineering Accreditation Commission of the Accreditation Board of Engineering and Technology (ABET), 111 Market Pl, Ste. 1050, Baltimore, MD 21202-4012, (410) 347-7700. The programs leading to the BSC and BACS are accredited by the Computing Accreditation Commission of ABET, 111 Market Pl, Ste. 1050, Baltimore, MD 21202-4012, (410) 347-7700.

Electrical Engineering

The curriculum in electrical engineering is designed to give the student fundamental knowledge in the areas of general interest to all electrical engineers. The course of study is therefore oriented toward the basic theory and concepts which prepare students for entry into any of the many activities open to members of the profession including research, design, development, operations, management, teaching, sales, and consulting. Laboratory experience is emphasized to provide for familiarity with electrical, electronic and computing equipment and with experimental techniques. Modern laboratories are available for electrical circuits, electronics, power systems, electromagnetics, measurement, digital signal processing, wireless communications and computers. Students are exposed to a variety of up-to-date computing environments to aid in their studies.

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 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 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. A minor in another area, such as art, biochemistry, music, psychology, architecture, etc., is strongly encouraged.

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 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 in oral and written forms (Our graduates communicate effectively); and 6) to work 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 computing and mathematics appropriate to the discipline. In particular, students should be able to apply this knowledge in a way that demonstrates comprehension of the tradeoffs involved in the modeling, design and development of software systems of various scales and complexity; b) an ability to analyze a problem, and identify and define the computing requirements appropriate to its solution; c) an ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs; d) an ability to function effectively on teams to accomplish a common goal; e) an understanding of professional, ethical and social responsibilities; f) an ability to communicate effectively; g) an ability to analyze the impact of computing on individuals, organizations, and society, including ethical, legal, security, and global policy issues; h) a recognition of the need for, and an ability to engage in, lifelong learning; i) an ability to use current techniques, skills, and tools 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 http://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**
- **First Term** Hours
  - Cpt S 121 4
  - Eng 101 [W] (GER) 3
  - GenEd 110 or GenEd 111 [A] (GER) 3
  - Math 201 3
  - Phil 201 [H] (GER) 3

**Second Term** Hours
- Cpt S 122 4
- GenEd 110 or GenEd 111 [A] (GER) 3
- Math 202 [N] (GER) 3
- Math 216 3
- Social Sciences and Diversity [S,K] [D] (GER) 3

#### Second Year

**First Term**
- **First Term** Hours
  - Cpt S 223 3
  - Cpt S 260 3
  - Lab Sciences [B,P] (GER) 3
  - Math 212 4

**Second Term** Hours
- Cpt S 224 2
- Lab Sciences [B,P] (GER) 3
- Math Elective 3
- Minor Elective 4
- Complete Writing Portfolio

#### Third Year

**First Term**
- **First Term** Hours
  - Cpt S 322 [M] 3
  - Cpt S 355 3
  - Eng 402 [W] or 403 [W] (GER) 3
  - Lab Sciences [B,P] (GER) 3
  - Science Elective [B,P,Q] (GER) 3

**Second Term**
- **Second Term** Hours
  - Advanced Cpt S Elective 3
  - Cpt S 323 3
  - Intercultural Studies [I,G,K] (GER) 3
  - Minor Electives 4
  - Complete Cpt S Exit Interview and Survey

#### Fourth Year

**First Term**
- **First Term** Hours
  - Advanced Cpt S Elective 3
  - Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
  - Cpt S 422 [M] 3
  - Minor Elective 4

**Second Term** Hours
- Advanced Cpt S Elective 4
- Cpt S 402 3
- Minor Elective 4
- Tier III Humanities or Social Sciences Course [T] (GER) 3
- Complete Cpt S Exit Interview and Survey

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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. Soc 101 recommended.
3. Science electives must include a year-long sequence (two semester including a laboratory in each semester) and two additional science courses, one of which must have a laboratory component. Acceptable science courses are those designated [P], [B], or [Q]; courses with a lab component have an (L) designation in WSU’s GER system. At least one science course from each of the [B] and [P] categories is required.
4. Elective credits must include a minor program. Completion of a minor is a graduation requirement. If a minor in science or engineering discipline is contemplated, Math Sequence B should be taken (see note 1).
5. Advanced computer science electives must be chosen to contain advanced work in at least three separate computer science areas. Consult with an advisor for course choices.

### 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; 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**
- **First Term** Hours
  - Cpt S 121 4
  - GenEd 110 or 111 [A] (GER) 3
  - Math 172 4
  - Math 216 3

#### Second Year

**First Term**
- **First Term** Hours
  - Cpt S 223 3
  - Cpt S 224 2
  - Cpt S 260 3
  - Phys 201 [P] (GER) 4
  - Social Sciences [S,K] (GER) 3

**Second Term** Hours
- Biological Sciences [B] (GER) 4
- GenEd 110 [A] or 111 [A] (GER) 3
- Math 220 2
- Phys 202 [P] (GER) 4
- Social Sciences and Diversity [S,K] [D] (GER) 3
- Complete Writing Portfolio

#### Third Year

**First Term**
- **First Term** Hours
  - Cpt S 322 [M] 3
  - Cpt S 355 3
  - Eng 402 [W] or 403 [W] (GER) 3
  - Math 273 or 301 2 or 3
  - Stat 360 3

**Second Term** Hours
- Cpt S 317 3
- Cpt S 323 3
- Cpt S 360 4
- Cpt S Option Courses 3

#### Fourth Year

**First Term**
- **First Term** Hours
  - Cpt S 421 3
  - Cpt S 422 [M] 3
  - Cpt S 450 3
  - Cpt S Option Courses 3
  - Intercultural Studies [I,G,K] (GER) 3

**Second Term** Hours
- Cpt S 402 3
- Cpt S 423 3
- Cpt S 460 3
- Cpt S Option Course 3
- Tier III Humanities or Social Sciences Course [T] (GER) 3
- Complete Cpt S Exit Interview and Survey

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1. EconS 101 or EconS 102 recommended.
2. Soc 101 recommended.
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 (123 HOURS)

Students may apply for certification into the Bachelor of Science in Computer Engineering degree program after completion of 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.
S courses, required electives, and prerequisites to these courses must be completed with a grade of C or better.

**First Year**

<table>
<thead>
<tr>
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<td>Math 171 [N] (GER)</td>
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<tr>
<th>Second Term</th>
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<tbody>
<tr>
<td>Cpt S 122</td>
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</tr>
<tr>
<td>Math 172</td>
<td>4</td>
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<tr>
<td>Math 216</td>
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<td>Phys 201 [P] (GER)</td>
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**Second Year**

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<tbody>
<tr>
<td>E E 214</td>
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<td>GenEd 110 or 111 [A] (GER)</td>
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<tr>
<td>Math 220</td>
<td>2</td>
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<td>Math 273</td>
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<td>Phys 202 [P] (GER)</td>
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<tbody>
<tr>
<td>Cpt S 223</td>
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<td>E E 234</td>
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<td>Math 315</td>
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<td>Complete Writing Portfolio</td>
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<td>3</td>
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<tr>
<td>E E 352</td>
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<td>Engl 402 [W] or 403 [W] (GER)</td>
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<tr>
<td>Biological Sciences [B] (GER)</td>
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<td>Cpt S 360</td>
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<tr>
<td>E E 334</td>
<td>3</td>
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<tr>
<td>Engineering Science Elective(^1)</td>
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<td>Stat 360</td>
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**Fourth Year**

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<td>Approved Cpt E Technical Electives(^2)</td>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Design 1</td>
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<td>E E 415</td>
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<td>EconS 101 [S] or EconS 102 [S] (GER)</td>
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<td>E E 416 [M]</td>
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<td>Intercultural Studies [L,G,K] (GER)</td>
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<td>Tier III Humanities or Social Sciences Course [T] (GER)</td>
<td>3</td>
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<tr>
<td>Complete Cpt E Exit Interview and Survey</td>
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**Electrical Engineering Requirements (123 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 121 or 251; Cpt S 122 or E E 221; E E 214; 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, required electives, and prerequisites to these courses must be completed with a grade of C or better.

**First Year**

<table>
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<tbody>
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<td>Math 171 [N] (GER)</td>
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**Second Term**

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<tbody>
<tr>
<td>Cpt S 121</td>
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<td>Math 172</td>
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<td>Math 220</td>
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<tr>
<td>Math 273</td>
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<tr>
<td>Phys 201 [P] (GER)</td>
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**Second Year**

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<td>Engl 101 [W] (GER)</td>
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<td>Engr 120</td>
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<td>Math 171 [N] (GER)</td>
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**Second Term**

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**Third Year**

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<tbody>
<tr>
<td>E E 311</td>
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<td>E E 352</td>
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<tr>
<td>Engineering Science Elective(^1)</td>
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**Second Term**

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<tbody>
<tr>
<td>E E 341</td>
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<tr>
<td>E E 361</td>
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<td>Math 360</td>
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**Fourth Year**

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<tr>
<td>Engl 402 [W] or 403 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural Studies [L,G,K] (GER)</td>
<td>3</td>
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<tr>
<td>Track Elective(^2)</td>
<td>6</td>
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</table>

**Description of Courses**

COMPUTER SCIENCE

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

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.

\(^1\) Choose from E E 331, 341, M E 301, or MSE 302.

\(^2\) Technical electives must all be 300 or 400 level courses and must be chosen with an advisor’s approval.
Electrical Engineering and Computer Science

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, or c//. 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.

260 Introduction to Computer Architecture 3 Prereq Cpt S 223 or c//. Computer systems architecture: logic, data representation, assembly language, memory organization and trends.

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 [M] Software Engineering Principles I 3 Prereq Math 216. Introduction to software engineering; requirements analysis, definition, specification including formal methods; prototyping; design including object and function oriented design.

323 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. 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 sys-tems programs, concepts of computer operating systems; laboratory experience in using operating system facilities.

401 [T] Computers and Society 3 Prereq completion of one Tier I and three Tier II courses. 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 [M] Social and Professional Issues in Computer Science 3 Prereq Cpt S 121; certified in computer science. 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 or c//. Large-scale software development including requirements analysis, estimation, design, verification and project management.

422 [M] 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 or c//. Laboratory/group design project for large-scale software development, requirements analysis, estimation, design, verification techniques.

425 Network Security 3 (1-6) Prereq Cpt S 360. Practical topics in network security; policy and mechanism, malicious code; intrusion detection, prevention, response; cryptographic techniques for privacy and integrity; emphasis on tradeoffs between risk of misuse, cost of prevention, and societal issues; concepts implemented in programming assignments. Additional projects/assignments reqd for grad cr. Cooperative course taught by UI, open to WSU students (CS 438).

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 315. 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.

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. Credit not granted for both Cpt S 440 and 540.

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. Credit not granted for both Cpt S 443 and 543.

450 Design and Analysis of Algorithms 3 Prereq Cpt S 223; Cpt S 317. 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.


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.

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.

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).

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. Credit not granted for both Cpt S 466 and 566. 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.

471 Computational Genomics 3 Prereq Cpt S 450; C, C++ or Java experience. Fundamental algorithms, techniques and applications. Credit not granted for both Cpt S 471 and 571.

481 Python Software Construction 3 Prereq Cpt S 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 (0-3) to 9 (0-27) May be repeated for credit; cumulative maximum 9 hours. Prereq 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 (0-3) to 4 (0-12) 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.

516 Algorithmics 3 Prereq Cpt S 450. Discrete structures, automata, formal languages, recursive functions, algorithms, and computability.

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.

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.

540 Artificial Intelligence 3 Graduate-level counterpart of Cpt S 440; additional requirements. Credit not granted for both Cpt S 440 and 540.

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.

543 Human-Computer Interaction 3 Graduate-level counterpart of Cpt S 443; additional requirements. Credit not granted for both Cpt S 443 and 543.

548 Advanced Computer Graphics 3 Prereq Cpt S 442. Solid modeling, visual realism, light and color models, advanced surface generation techniques.

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.

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.

560 Operating Systems 3 Prereq Cpt S 460. Structure of multiprogramming and multiprocessing; 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; multilast, 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 360; 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.

571 Computational Genomics 3 Prereq Cpt S 450; C, C++ or Java experience. Graduate-level counterpart of Cpt S 471; additional requirements. Credit not granted for both Cpt S 471 and 571.

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, 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 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 6 hours. Current topics in computer science.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

802 Embedded Systems 3 Prereq Cpt S 460; graduate standing. Graduate-level counterpart of Cpt S 466; additional requirements. Credit not granted for both Cpt S 466 and 566.

595 Directed Study in Computer Science V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 6 hours. Current topics in computer science.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

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. 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//. Electrical instruments; laboratory applications of electric 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, E E 261; c// in E E 352. Fundamental device characteristics including diodes, MOSFETs and bipolar transistors; small- and large-signal characteristics and design of linear circuits.

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.


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 3 (1-6) 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.

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, TOM, 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.

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.


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 (ECE 452).

455 Introduction to Computer Networks 3 Prereq Cpt S 360. Same as Cpt S 455.

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.

466 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, modelling, implementation, documentation and reporting.

470 Concepts in Biotechnology 3 Prereq [B] GER; certified major in electrical engineering, computer engineering, or computer science; concurrent enrollment in senior design or by permission. Fundamentals of biological sciences and biotechnology for engineers and computer scientists.

476 Analog Integrated Circuits 3 Prereq E E 311; E E 351 or c/; E E 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 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.

483 Topics in Electrical and Computer Engineering V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 6 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.

492 Renewable Energy Sources 3 (2-3) Prereq E E 361; E E 362. Design of electrical generation plants using wind, solar and other renewable energy sources including technical, environmental and economic aspects.

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 1 (0-3) Prereq E E 361; 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 (0-6) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq electrical engineering major; by interview only. 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.

499 Special Problems V 1 (0-3) to 4 (0-12) 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 (ECE 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 (ECE 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.

504 Modern Optics 3 Prereq E E 341, 351, Stat 443. Diffraction theory, Fourier transforming and imaging properties of lenses, spatial filtering, holography, temporal and spatial coherence, imaging through random media. Cooperative course taught by WSU, open to UI students (EE 534).


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 (ECE 526).

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 jointly by WSU and UI (ECE 530).

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.
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. Students must complete Math 172 and Physics 201 to certify for a minor in Engineering and enrolling in any upper-division engineering courses. Courses must be selected from the following prefixes: B E, Ch E, C, Engr, E E, M E, and M S E. With the approval of the Associate Dean for Undergraduate Programs and Student Services, up to 3 credits from the Arch or Cst M prefix may be used to fulfill a lower division course requirement for the Engineering minor. For a current list of approved courses, consult an engineering advisor or contact the Associate Dean for Undergraduate Programs and Student Services office at ceainfo@wsu.edu or 509-335-0348.

Description of Courses

ENGINEERING

Engr

107 [N] Introductory Mathematics for Engineering Applications 3 (2-3) Prereq Math 101 or 103 with a grade of C or better or satisfactory math placement score. Application of mathematics principles to engineering problems across engineering disciplines; concepts from trigonometry to differential equations necessary for sophomore engineering courses.

120 Innovation in Design 2 Introduction to engineering disciplines, problem solving, design teamwork and ethics.

201 Metal Fabrication 3 (1-6) Same as AgTM 201. Cooperative course taught by WSU, open to UI students (AGM EC 201).

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.

421 [M] Multidisciplinary Engineering Design II 3 (1-4) Prereq senior standing; certified engineering major. Prototype solution developed and evaluated and business plan completed; presentation to stake holders; team development and assessment.
Educational Objectives

Computer Science Program Description

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:

• 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.
• 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.
• 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.
• You will adapt to the changing landscape of computer science. Effective computer scientists must regularly update their knowledge and skills.

Electrical Engineering Program Description

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 rapidly changing technologies. We emphasize the fundamentals and give students significant choice in designing their academic course of study 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 data-intensive computation. 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). In Electrical Engineering, students can choose upper division elective courses in computer architecture, integrated circuit design and test, electronic devices and materials, and others. 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, electrical engineering, 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), Bachelor of Science in Electrical Engineering (BSEE), Master of Science in Mechanical Engineering (MSME) and Master of Science in Computer Science (MSCS).

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• 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.
• 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.
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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 rapidly changing technologies. We emphasize the fundamentals and give students significant choice in designing their academic course of study 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 data-intensive computation. 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). In Electrical Engineering, students can choose upper division elective courses in computer architecture, integrated circuit design and test, electronic devices and materials, and others. 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, electrical engineering, 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), Bachelor of Science in Electrical Engineering (BSEE), Master of Science in Mechanical Engineering (MSME) and Master of Science in Computer Science (MSCS).

Computer Science Program Description

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:
Mechanical Engineering Program Description

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, and force, and they 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, and
- Mechatronics (robotics and automation)

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 successful 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:

- Apply technical knowledge and skills as mechanical engineers to provide optimal solutions in industrial and government organizations.
- Utilize effective communication, team, and project management skills to work productively within their professions and communities.
- Conduct themselves as responsible professionals making contributions in technology for the greater benefit of society.
- 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:

- Knowledge of mathematics, science and engineering principles and the ability to apply this knowledge for solving problems.
- Ability to design and conduct experiments as well as to analyze and interpret data.
- Ability to design and realize thermal and mechanical components, systems, or processes to meet desired needs and realistic constraints such as economical, environmental, social, political, ethical, health and safety, manufacturability and sustainability.
- Ability to function on multidisciplinary teams.
- Ability to identify, formulate and solve problems encountered in the practice of mechanical engineering.
- Understanding of professional and ethical responsibility.
- Ability to communicate effectively.
- Ability to understand the impact of engineering solutions in a global, economic, environmental and societal context.
- Recognition of the need for and an ability to engage in life-long learning.
- Knowledge of contemporary issues.
- 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, electrical engineering, or 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 Coordinators.

Students who have completed at least 30 semester hours of course work and who have completed CS 121, CS 122, CS 216, CS 224, CS 260, CS 261; Math 171, Math 172; Phil 201; 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 many upper-division electrical engineering courses is restricted to certified majors or minors in electrical or mechanical engineering.

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 an ENCS 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 credits 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, CS 360 and CS 450, including all prerequisites for these courses. 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 a minimum of 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 $6 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.

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, 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, CS 122, CS 216, CS 224, CS 260, CS 261, Math 171, Math 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 listed computer science courses, and their prerequisites, must be completed with a grade of C or better.

First Year

**First Term**
- CS 121 [H] (GER) 4
- GenEd 110 [A] (GER) 3
- Math 171 [N] (GER) 4
- Phil 201 [H] (GER) 3

**Second Term**
- CS 122 [H] 4
- CS 216 3
- Engl 101 [W] (GER) 3
- GenEd 111 [A] (GER) 3
- Math 172 3

Second Year

**First Term**
- CS 223 3
- CS 260 3
- EconS 101 [S] or 102 [S] (GER) 3
- Math 273 2
- Phys 201 [P] (GER) 4

**Second Term**
- Biological Sciences [B] (GER) 4
- CS 224 2
- CS 261 3
- Math 220 2
- Phys 202 [P] (GER) 4
- Complete Writing Portfolio

Third Year

**First Term**
- CS 317 3
- CS 320 [M] 3
- CS Option Course1 3
- Engl 402 [W] or 403 [W] (GER) 3
- Stat 360 3

**Second Term**
- Arts & Humanities and Diversity [H,G,D] or Social Sciences and Diversity [S,K,D] (GER) 3
- CS 351 3
- CS 355 3
- CS 360 4
- CS Option Course1 3

Fourth Year

**First Term**
- CS 402 [M] 3
- CS 450 3
- CS Option Course1 6
- Intercultural Studies [J,G,K] (GER) 3

**Second Term**
- CS 420 [M] 3
- CS Option Courses1 9
- Tier III Humanities or Social Science Course [T] (GER) 3

1 Please see department for an approved list of elective courses. The electives are chosen from upper-division computer science and related courses and must be pre-approved by a faculty advisor.

BACHELOR OF SCIENCE, ELECTRICAL ENGINEERING REQUIREMENTS (VANCOUVER ONLY) (122 HOURS)

Students who have completed at least 30 semester hours of course work and who have completed Chem 105; CS 251; ECE 214, ECE 234, ECE 260, Math 273, and Phys 202, or their equivalents, are eligible for certification into the Bachelor of Science in Electrical Engineering program. All courses required for certification must be completed with a grade of C or better. Enrollment in many upper-division electrical engineering courses is restricted to certified majors or minors in electrical or mechanical engineering. No courses listed in this schedule of studies may be taken on a pass/fail basis. All upper-division electrical engineering courses must be completed with a minimum 2.0 average gpa.

**First Year**
- First Term
  - CS 105 [P] (GER) 4
  - ECE 101 2
  - Engl 101 [W] (GER) 3
  - GenEd 110 [A] (GER) 3
  - Math 171 [N] (GER) 4

- Second Term
  - CS 251 2
  - EconS 101 [S] or 102 [S] (GER) 3
  - GenEd 111 [A] (GER) 3
  - Math 172 4
  - Phys 201 [P] (GER) 4

**Second Year**
- First Term
  - Biological Sciences [B] (GER) 3
  - ECE 214 3
  - Math 220 2
  - Math 273 2
  - Phys 202 [P] (GER) 4

- Second Term
  - Arts & Humanities [H,G] (GER) 3
  - ECE 234 3
  - ECE 260 4
  - ECE Elective1 3
  - Math 315 3

**Third Year**
- First Term
  - ECE 321 3
  - ECE 325 4
  - ECE Elective1 3
  - Engl 402 [W] or 403 [W] (GER) 3
  - Stat 360 3

- Second Term
  - ECE 341 3
  - ECE 370 3
  - ECE Electives1 6
  - Intercultural Studies [J,G,K] (GER) 3

**Fourth Year**
- First Term
  - ECE 405 [M] 3
  - ECE 451 2
  - ECE Electives1 9

- Second Term
  - ECE 411 3
  - ECE 452 [M] 3
  - ECE Electives1 6
  - Tier III Humanities or Social Science/Diversity [T,D] (GER) 3

1 Please see department for an approved list of elective courses. The electives are chosen from upper-division electrical engineering and related courses and must be pre-approved by a faculty advisor.

BACHELOR OF SCIENCE, MECHANICAL ENGINEERING REQUIREMENTS (VANCOUVER ONLY) (124 HOURS)

Students who have completed at least 30 semester hours of course work and who have completed Chem 105; Math 220, 273; Mech 211, 212, 215; and Phys 201 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 upper-division mechanical engineering courses must be completed with a minimum 2.0 average gpa.

**First Year**
- First Term
  - EconS 101 [S] or 102 [S] (GER) 3
  - GenEd 111 [A] (GER) 3
  - Math 172 4
  - Phys 201 [P] (GER) 4

**Second Year**
- First Term
  - Arts & Humanities [H,G] (GER) 3
  - Chem 105 [P] (GER) 4
  - GenEd 110 [A] (GER) 3
Math 171 [N] (GER) 4
Mech 101 2

Second Term
Chem 106 4
Engl 101 [W] (GER) 3
GenEd 111 [A] (GER) 3
Math 172 4
Mech 103 2

Second Year

First Term
CS 251 2
Econ 101 [S] or 102 [S] (GER) 3
Math 220 2
Math 273 2
Mech 211 3
Phys 201 [P] (GER) 4

Second Term
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
Mech 301 3
Mech 303 3
Mech 304 3
Mech 309 3
Mech 314 [M] 3

Second Term
Mech 310 4
Mech 348 3
Mech 404 3
Mech 414 3

Fourth Year

First Term
Engl 402 [W] (GER) 3
Mech 402 3
Mech 416 2
400-level Mech Option Course 3
400-level Mech Technical Elective 3

Second Term
Intercultural Studies [I,G,K] (GER) 3
Mech 417 3
Tier III Humanities or
Social Science Course [T,D] (GER) 3
400-level Mech Option Course 3
400-level Mech Technical Elective 3

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 mechanical engineering 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. This minor requires (1) Mech 211 and Mech 212, (2) Four out of the following Mech 431, Mech 438, Mech 450, Mech 467, Mech 468, Mech 441, Mech 309, Mech 314, Mech 215, Mech 303, or Mech 348. At least one of these four courses must be Mech 215, Mech 303, or Mech 348. All prerequisites for minor courses must be met. All courses must be completed with a minimum 2.0 average gpa.

Description of Courses

COMPUTER SCIENCE - VANCOUVER
Enrollment in 400-level computer science courses is restricted to certified minors 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 with a C or better or C++ 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 with a C or better or CS 251 with a C or better. Advanced programming techniques: data structures, recursion, sorting and searching, and basics of algorithm analysis.

216 Discrete Structures 3
Prereq Math 107 with a C or better or 108 with a grade of C or better, and a programming course. Same as Math 216.

223 Advanced Data Structures 3
Prereq CS 122 with a C or better; CS 216 with a C or better. Advanced data structures, object oriented programming concepts, concurrency, and program design principles.

224 Programming Tools 2
Prereq CS 122 with a C or better. Debugging tools, scripting languages, UNIX programming tools, introduction to graphical user interface programming.

251 C Programming Language 2
Prereq Math 171 with a C or better or C++. Comprehensive programming practice using C.

260 Computer Organization 3
Prereq CS 122 with a C or better. Introduction to computer architecture, data representation, design and analysis of instruction sets, implementation of machine instructions, virtual memory and multiprocessing.
442 **Computer Graphics** 3 Prereq CS 223 with a C or better; CS 320 with a C or better; Math 220 with a C or better. 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 with a C or better; CS 320 with a C or better. 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 with a C or better; Stat 360 with a C or better. Analysis of data structures and algorithms; computational complexity and design of efficient data-handling procedures.

452 **Compiler Design** 3 Prereq CS 317 with a C or better; CS 355 with a C or better. Design of lexical analyzers, syntactic analyzers, intermediate code generators, code optimizers and object code generators.

453 **Web Data Management** 3 Prereq CS 351 with a C or better. Introduction of concepts, data models, query and retrieval languages; implementation issues for management of web data.

455 **Introduction to Computer Networks** 3 Prereq CS 360 with a C or better. Concepts and implementation of computer networks; architectures, protocol layers, internetworking and addressing case studies.

460 **Operating Systems** 3 Prereq CS 360 with a C or better. Role and purpose of operating systems, process and memory management, I/O device management and drivers, file system concepts and design.

466 **Embedded Systems** 3 (2-3) Prereq CS 360 with a C or better or ECE 234 with a C or better. 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.

483 **Topics in Computer Science** V 1-4 May be repeated for credit. Prereq certified in computer science. Current topics in computer science or software engineering.

490 **Work Study Internship** V 1 (0-3) to 9 (0-27) May be repeated for credit; cumulative maximum 9 hours. Prereq CS 224 with a C or better; CS 261 with a C or better; certified in computer science; by permission 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 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

516 **Theory of Computation** 3 Background preparation must include a strong background in discrete mathematics, automata, and formal languages. Discrete structures, automata, formal languages, recursive functions, algorithms, computability, and complexity.

521 **Software Engineering Analysis** 3 Background preparation must include a familiarity with the use and theory behind current software engineering practices. 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.

527 **Computer Security** 3 Graduate-level counterpart of CS 427; additional requirements. Credit not granted for both CS 427 and 527.

541 **Artificial Intelligence** 3 Background preparation must include prior knowledge and experience in artificial intelligence. Intelligent computer programs; simulation of cognitive processes.

542 **Computer Graphics** 3 Graduate-level counterpart of CS 442; additional requirements. Credit not granted for both CS 442 and 542.

547 **Computer Game Design** 3 Graduate-level counterpart of CS 447; additional requirements. Credit not granted for both CS 447 and 547.

548 **Advanced Computer Graphics** 3 Background preparation must include a prior knowledge and understanding of linear algebra and the graphics pipeline. Solid modeling, visual realism, light and color models, advanced surface generation techniques.

558 **Wireless Sensor Networks** 3 Background preparation must include a prior knowledge and understanding of communication protocols such as TCP/IP and experience in network programming. Design and implementation of sensor networks.

566 **Embedded Systems** 3 (2-3) Graduate-level counterpart of CS 466; additional requirements. Credit not granted for both CS 466 and 566.

570 **Machine Learning** 3 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 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 3 hours. Current topics in computer science.

700 **Master’s Research, Thesis, and/or Examination** V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

**ELECTRICAL ENGINEERING - VANCOUVER**

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 107 or c//. 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 ECE 101; Math 107. Design and application of combinational logic circuits with exposure to modern methods and design tools; introduction to sequential logic circuits.

234 **Microprocessor Systems** 3 (2-3) Prereq CS 251 or 261; ECE 214. Microprocessor system architecture, instruction sets and interfacing; assembly language programming.

260 **Circuit Modeling and Analysis I** 4 (3-3) Prereq ECE 101; 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 I** 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. Schrodinger’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 Systems Design** 3 (2-3) Prereq ECE 214. Implementation of datapaths and controllers, use of hardware description languages and automated synthesis 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 parasites, 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 214; ECE 325 or c//. 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.


424 Computer Architecture and Design 3 Prereq ECE 234. Architecture, organization and design of modern digital computers; instruction set, computer arithmetic, pipelining, memory hierarchy, storage and input/output topics.

425 RF Devices and Circuits 3 (2-3) Prereq ECE 341; ECE 370. Semiconductor devices and circuit design targeting wireless applications.

451 Capstone Design I 2 Prereq ECE 325, Engl 402; senior standing; certified major in electrical engineering. First of a two-course senior design project sequence; design for manufacture, schedule estimation and tracking, costing, ethics and proposal writing.

452 [M] Capstone Design II 3 (1-6) Prereq ECE 451. 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 Electro-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 324; ECE 366. Algorithms and design flows for VLSI design synthesis and verification.

477 VLSI Testing and Design for Test 3 (2-3) Prereq ECE 324; 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; device model 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 permission 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 permission only. S, F grading.

MECHANICAL ENGINEERING - VANCOUVER

Enrollment in many upper-level mechanical engineering courses is restricted to certified majors or minors in mechanical engineering.

Mech

101 Introduction to Mechanical Engineering 2 Introduction to mechanical engineering profession, engineering problem solving, computers in engineering design methods.

103 Engineering Graphics 2 (1-3) 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. 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 212. Rec Math 315. Physical properties, fluid statics, laminar and turbulent flow, impulse and momentum, similitude, pipe flow, boundary layers, lift, drag and measurement techniques, fluid experiments.


309 Introduction of Engineering Materials 3 (2-3) Prereq Chem 106 or c//; Mech 215; Phys 201 or c//. Structure of materials, phase equilibrium, phase transformations, mechanical failure, and mechanical properties; materials testing laboratory.

310 Introduction to Design and Manufacturing 4 (3-3) Prereq certified Mech major; Mech 103; Mech 309. Basic mechanical engineering drawing; shaping and non-shaping manufacturing processes; exposure to 3D-CAD; manufacturing processes laboratory.

313 Engineering Analysis 3 (2-3) Prereq CS 251, Math 220; Math 315; major in engineering. Analysis and modeling of engineering problems utilizing numerical and mathematical techniques and computers.

314 [M] Design Process 3 Prereq Mech 215. Design process, design projects, engineering economics, and ergonomics; extensive use of CAD.

348 Dynamics Systems and Control 3 Prereq certified Mech major; Math 315; Mech 212. Modeling and analysis of dynamic systems, including mechanical, electrical, fluid, and thermal systems. Fundamentals of vibration analysis, control systems.

402 Thermal Systems Design 3 (1-6) Prereq Mech 404. Design and analysis of thermal-fluid systems using principles of thermodynamics, fluid mechanics, and heat transfer, thermal experiments.

404 Heat Transfer 3 Prereq certified Mech major; Math 220; Math 315; Mech 301; Mech 303. Fundamentals of conduction, convection, and radiation heat transfer; analytical, numerical, and empirical modeling for solids, liquids, and gases.

405 Introduction to Microcontrollers 3 Prereq Mech 304; CS 251. Microcontroller architecture, microcontroller programming, mechanical system design with embedded microcontrollers.

414 Machine Design 3 Prereq certified Mech major; Mech 215; Mech 309; Mech 314. Combined stresses, static and fatigue failure theory and analysis, design and selection of machine elements such as shafts, fasteners, springs, gears and bearings.

416 [M] Mechanical Systems Design I 2 Prereq Mech 310; Mech 404; Mech 414. First term of the year-long capstone design; integrative design in mechanical engineering; multidisciplinary design project considering technical and nontechnical contexts.

417 Mechanical Systems Design II 3 Prereq Mech 416. Second term of the year-long capstone design; integrative design in mechanical engineering; multidisciplinary design project considering technical and nontechnical contexts.

425 Introduction to Manufacturing Systems 3 Prereq Mech 310 or c//. Traditional and contemporary tools used to support direct manufacturing processes in a manufacturing enterprise.
431 Semiconductor Devices 3 Prereq Chem 105; Phys 202. 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 105; 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.

450 Advanced Topics in Micro and Nano Technology 3 (2-3) Prereq Chem 106; Phys 202. Microfabrication technology, bulk and surface micromachining, sensors and actuators, microelectromechanical systems (MEMS), nanofabrication technology, micro/nano scale material and device measurements. Credit not granted for both Mech 450 and 550.

467 Automation 3 (2-3) Prereq 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 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 or c/. 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 215; Mech 310 or c/. 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 of 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 V 3-6 May be repeated for credit; cumulative maximum 12 hours. Prereq certified Mech major. Students work full time on engineering assignment in approved industries with industrial and faculty supervision. S, F grading.

499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

509 MEMS Engineering 3 (2-3) Introduction to the design, fabrication and application of microelectromechanical systems.

515 Advanced Heat Transfer 3 Energy conservation equations; forced convection with internal and external flow, free convection, boiling and condensation, mass transfer, numerical methods.

521 Fundamentals of Fluids 3 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 Theory of finite elements; applications to general engineering systems considered as assemblages of discrete elements.

538 Microfabrication Technology 3 (2-3) Graduate-level counterpart of Mech 438; additional requirements. Credit not granted for both Mech 438 and 538.

540 Advanced Dynamics 3 Newtonian dynamics, rotating coordinate systems; Lagrangian and Hamiltonian mechanics, gyroscopic mechanics, other applications.

542 Advanced Thermal Systems 3 Graduate-level counterpart of Mech 442; additional requirements. Credit not granted for both Mech 442 and 542.

550 Micro and Nano Technology 3 (2-3) Graduate-level counterpart of Mech 450; additional requirements. Credit not granted for both Mech 450 and 550.

567 Automation 3 (2-3) Graduate-level counterpart of Mech 467; additional requirements. Credit not granted for both Mech 467 and 567.

568 Robotics 3 Graduate-level counterpart of Mech 468; additional requirements. Credit not granted for both Mech 468 and 568.

576 Advanced Manufacturing Engineering 3 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.

589 Material Failure in Mechanical Design 3 Graduate-level counterpart of Mech 489; additional requirements. Credit not granted for both Mech 489 and 589.

598 Seminar 1 May be repeated for credit. Current research interests. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for 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, J. R. Holt, E. R. Ladd, H. A. Rumsey; Adjunct Instructors; R. Crick, G. Sudikatifs.

Engineering and Technology Management is a graduate program designed to help technical professionals become effective managers. The program is administered by the College of Engineering and Architecture and offered through WSU On-line. 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. Students bring a significant amount of experience and diversity into the academic arena from a variety of engineering, technology, and management backgrounds.

This interdisciplinary master's degree is offered to individuals, industries and high-tech firms around the country and around the world using Elluminate, a web conferencing classroom system. Classes are offered at times convenient for the working professional. Each ETM course lecture is broadcast over the Internet at the same time the live session is presented. The primary software used is Elluminate, which gives students real-time, full service videoconferencing capability with all students in the class. Students can participate in class discussions through audio, video, and text chat. Spontaneous file sharing is also possible. This software is also used for student presentations and virtual meetings for team projects. Each class is archived and is available for review during the entire semester. To verify that your computer hardware and network are compatible with Elluminate, visit http://www.elluminate.com/Support/. Courses are presented and managed using Angel, a web-enabled course hosting platform.

The ETM program also offers the following eight graduate level 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 is a nonthesis degree which consists of 32-34 credit hours including a minimum of 30 credit hours of approved graded course work (10 classes) and 2-4 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.

Core Requirements allow students to choose one course from each of the six core areas Managing Organizations and People (EM 501, 522), Managing Financial Resources (EM 505, 545, 590), Managing with Analytical Methods (EM 540, 560), Managing
Projects (E M 564, 520), Managing Variability (Stat 430, E M 580, 585), and Managing Strategy (E M 526, 575, 591). Four additional courses can be chosen as electives—from any area, both core and elective. Electives include E M 508, 530, 534, 538, 555, 565, 566, 570.

Each certificate requires 12 credits. If students plan their course of studies carefully, they are able to earn certificates simultaneously while earning the master's degree.

Admission Requirements

Students who apply to the Master of Engineering and Technology Management degree program will have earned a bachelor's 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 email addresses for three individuals willing to write 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 or master's degree program, please contact the Pullman office at (509) 335-0125 or by email: engmgt@wsu.edu.

Description of Courses

ENGINEERING MANAGEMENT

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 Prereq graduate standing. Basic legal obligations of engineering/technical managers; identify, minimize and recognize risks and liability; contemporary legal environment and business law.

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 530 or 534. 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.

540 Operations Research for Managers 3 Rec Math 273. Applying linear, integer, goal programming; network optimization; queuing analysis; dynamic programming; simulation; Markov analysis; and forecasting to engineering management decisions.

545 Technical Decision Analysis 3 Prereq basic stats course; graduate standing. Decision analysis provides a structured discipline for describing, analyzing, and finalizing decisions involving uncertainty.

555 Enterprise Resource Management 3 Prereq graduate standing. Focusing the flow of quality, timely products and cooperative supply chain operations and planning using simulation and effective enterprise resource management.

560 Integrated Supply Chain Management 3 How technical managers analyze and manage the flow of materials, services, and information for products from inception to final customer.

564 Project Management 3 Rec basic statistics course. Planning, organizing, scheduling and controlling major projects; human dimensions, PERT and CPM scheduling models, resource allocation, and cost controls. Credit not granted for both E M 464 and 564.

565 Introduction to Systems Management 3 Prereq graduate standing. Design manufacture, operation of complex system development for engineering managers; project planning, organizing, and controlling tools for engineering system constraints.

566 System Engineering Analysis and Practice 3 Prereq graduate standing. Problem-solving methodologies based on system concepts and design applications for complex, large-scale technical systems pertinent to program managers.

570 Six Sigma Quality Management 3 Prereq graduate standing. Graduate-level counterpart of E M 470; additional requirements. Credit not granted for both E M 470 and 570.

575 Performance Management in Technical Organizations 3 Rec MgtOp 501 or c//. Management of high technology organizations; planning, measurement, and human factors in improving high technology organizations; productivity, motivation and performance systems.

580 Quality Control and Reliability 3 Prereq graduate standing; rec Stat 430. Graduate-level counterpart of E M 480; additional requirements. Credit not granted for both E M 480 and 580.

585 Quality Engineering Using Design of Experiments 3 Prereq graduate standing; Rec Stat 430. Graduate-level counterpart of E M 485; additional requirements. Credit not granted for both E M 485 and 585.

590 Design for Product and Service Realization 3 Prereq graduate standing. Same as E M 490; additional requirements. Credit not granted for both E M 490 and 590.

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 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 9 hours. A wide range of current high-interest engineering management topics.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Department of English

libarts.wsu.edu/english
Avery 202, Pullman campus
509-335-2818


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 study 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 interdisciplinary 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 forefront 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 OPTION (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

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<tr>
<th>Course</th>
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<td>Arts &amp; Humanities [H,G] (GER)³</td>
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<td>Math Proficiency [N] (GER)</td>
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<td>Science Elective (GER)</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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<tr>
<td>Biological Sciences [B] (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>Elective (English or Humanities recommended)</td>
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Second Year

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<th>Course</th>
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<tr>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER)</td>
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<td>English or Humanities Elective</td>
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Second Term

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<td>Complete Writing Portfolio</td>
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<tr>
<td>Engl 370, 371, 372, or 373</td>
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<td>300-400 Level Literature or Humanities Elective</td>
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<td>300-400 Level Literature or Humanities Electives</td>
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<td>300-400 Level Literature or Humanities Electives</td>
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<td>300-400 Level Literature or Humanities Elective</td>
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<tr>
<td>Engl Senior Seminar or 400-Level Literature or Humanities Elective</td>
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<td>Engl Senior Seminar or 400-Level Literature or Humanities Elective</td>
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<tr>
<td>Electives</td>
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#### III. ENGLISH - CREATIVE 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

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<th>First Term</th>
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</table>
| 1
| Arts & Humanities [H,G] (GER) | 3 | Arts & Humanities [H,G] (GER) | 3 |
| GenEd 110 [A] (GER) | 3 | GenEd 110 [A] (GER) | 3 |
| Math Proficiency [N] (GER) | 3 | Math Proficiency [N] (GER) | 3 |
| Science Elective (GER) | 4 | Science Elective (GER) | 4 |
| 2
| Arts & Humanities [H,G] or Social Sciences [S,K] (GER) | 3 | Arts & Humanities [H,G] or Social Sciences [S,K] (GER) | 3 |
| Biological Sciences [B] (GER) | 4 | Biological Sciences [B] (GER) | 4 |
| GenEd 111 [A] (GER) | 3 | Engl 251 | 3 |
| Social Sciences [S,K] (GER) | 3 | GenEd 111 [A] (GER) | 3 |

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| 1
| Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) | 6 | Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) | 6 |
| Engl 301 [W] (GER) | 3 | Engl 351 or 353 | 3 |
| Physical Sciences [P] (GER) | 4 | Physical Sciences [P] (GER) | 4 |

#### Fourth Year

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<td>Engl 302 [W] (GER)</td>
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<td>Engle 360</td>
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<td>Engle 362</td>
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<td>Second Term</td>
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<tr>
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| GenEd 110 [A] (GER) | 3 | GenEd 110 [A] (GER) | 3 |
| Math Proficiency [N] (GER) | 3 | Math Proficiency [N] (GER) | 3 |
| Science Elective (GER) | 4 | Science Elective (GER) | 4 |
| 2
| Arts & Humanities [H,G] or Social Sciences [S,K] (GER) | 3 | Arts & Humanities [H,G] or Social Sciences [S,K] (GER) | 3 |
| Biological Sciences [B] (GER) | 4 | Biological Sciences [B] (GER) | 4 |
| GenEd 111 [A] (GER) | 3 | Engl 251 | 3 |
| Math Proficiency [N] (GER) | 3 | GenEd 111 [A] (GER) | 3 |

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| Engl 301 [W] (GER) | 3 | Engl 351 or 353 | 3 |
| Physical Sciences [P] (GER) | 4 | Physical Sciences [P] (GER) | 4 |
| Elective (literature course recommended) | 3 | Elective (literature course recommended) | 3 |

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<td>Engle 460 or 461</td>
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<tbody>
<tr>
<td>Engl 355, 357, or 402 (or Engl 498 or 499 with advisor approval)</td>
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<td>Literature Elective (400-level Engl or Hum)</td>
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<td>Upper-division Hum courses are not recommended for first-year students.</td>
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<td>Tier III Course [T] (GER)</td>
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| 2
| Writers of Color | 3 | Writers of Color | 3 |
| Electives | 9 | Electives | 9 |

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| Biological Sciences [B] (GER) | 4 | Biological Sciences [B] (GER) | 4 |
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| Math Proficiency [N] (GER) | 3 | GenEd 111 [A] (GER) | 3 |

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<td>Physical Sciences [P] (GER)</td>
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Intercultural Studies [I,G,K] (GER) 3
Complete Writing Portfolio

Third Year

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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.

V. ENGLISH - TEACHING WITHOUT CERTIFICATE OPTION (120 HOURS)

First Year

First Term

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Intercultural Studies [I,G,K] (GER) 3
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Second Term

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<td>Engl 326</td>
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<td>Engl 370 [H], 371 [H], 372 [H], or 373 [H] (GER)</td>
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Complete Writing Portfolio

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<td>Electives</td>
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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.

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.

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), Engl 354 or 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, 354, 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

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 course. S, F grading.

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.

105 [W] Composition for ESL Students 3 Prereq writing placement exam or C or better in Engl 104. Designed to develop academic writing, critical thinking, reading, library skills, and rhetorical strategies for non-native speakers of English. Credit not granted for more than one: Engl 101, 105, 198.
255 English Grammar 3 Introduction to the terms, concepts, and analytical methods of traditional English grammar.

256 Introduction to Linguistics 3 Technical introduction to sound, meaning, and structure of words and sentences in natural languages.

258 [W] Writing and Research Honors 3 Prereq Honors College Writing Diagnostic. Critical thinking, research, and advanced writing for Honors College students. Credit not granted for more than one: Engl 101, 105, and 198.

299 Writing Tutorial for Honors Students V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 5 hours. Prereq writing placement examination. Student-centered group tutorial focusing on writing improvement usually connected to the Engl 101 105 course. S, F grading.

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 Eng 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 Eng 101. Interpretation of texts in several fields of English studies including rhetoric, literary study, creative writing and professional writing.

303 Revision Workshop - ESL 3 May be repeated for credit; cumulative maximum 6 hours. Prereq GER written communication proficiency course and completion of University Writing Portfolio, or instructor permission. 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 Requirement by University Writing Portfolio or permission of instructor. 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] Historied Analysis of Literature 3 Prereq Engl 302 or c/. 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.

315 Asian Pacific American Autobiography 3 Same as CES 315.

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 Literature 3 May be repeated for credit; cumulative maximum 6 hours. Special topics in fiction, poetry, drama, or creative nonfiction.

336 [H] Composition and Design 3 Prereq sophomore 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.

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.

354 Digital Storytelling 3 Same as DTC 354.


356 Electronic Research and the Rhetoric of Information 3 Same as DTC 356.

357 Literary Editing and Publishing 3 May be repeated for credit; cumulative maximum 6 hours. Personal and collaborative editing for literary publication; practices of style; macro- and micro-editing.

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 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 Literary 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.

401 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.

405 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 Phonology 3 Technical introductions to the analysis of the sound systems of human languages. Credit not granted for both Engl 443 and 543.

444 Syntax 3 Prereq prior linguistics course or instructor permission. Technical introduction to the generative analysis of sentence structure with a focus on English.

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: Fiction 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.

453 Advanced Creative Writing: Nonfiction 3 May be repeated for credit; cumulative maximum 6 hours. Prereq one upper-division creative writing course. Advanced workshop in writing creative nonfiction prose.

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.

456 Language Acquisition 3 May be repeated for credit; cumulative maximum 6 hours. Theories and processes of first, second, and bilingual language acquisition.

457 Sociolinguistics 3 Study of language in social context and its relationship to social structures.

458 Topics in Linguistics 3 May be repeated for credit; cumulative maximum 6 hours. Specialized topics in linguistics.

460 [M] The Scope of Rhetoric 3 Major themes in contemporary rhetoric.


470 [T] Literature and Culture of the American West 3 May be repeated for credit; cumulative maximum 6 hours. 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.

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 Engl/DTC 375. Same as DTC 476.

477 Advanced Multimedia Authoring 3 Prereq Engl 355. Same as DTC 477.

478 Usability and Interface Design 3 (0-6) Prereq Engl 355. Same as DTC 478.

480 American Literature: Beginnings to 1865 3 Prereq Engl 302. Advanced study of major authors and movements from the period including Bradstreet, Wheatley, Franklin, Douglass, Poe, Emerson, and Hawthorne.
481 American Literature: 1865-1940 3 Prereq Engl 302. Advanced study of major authors and movements from the period including Whitman, Dickinson, Twain, Wharton, James, Hemingway, Faulkner, and Wright.

482 American Literature: 1940-Present 3 Prereq Engl 302. Advanced study of major authors and movements from the period including O'Connor, Bellow, Salinger, Baldwin, Pynchon, Morrison, Tan, and Alexie.

483 Chaucer and Medieval Literature 3 Prereq Engl 302. Advanced study of Chaucer’s Canterbury Tales in the context of Medieval culture and literary tradition.


485 Milton and English Literature of the 17th Century 3 Prereq Engl 302. Advanced study of works from the Metaphysicals and Johnson through Milton, in the context of religious controversy and civil war.

486 English Literature of the Restoration and 18th Century 3 Prereq Engl 302. Advanced study of works form this revolutionary period, including Locke, Behn, Defoe, Pope, Johnson, Equiano, and others.

487 British Romantic Literature 3 Prereq Engl 302. Advanced study of Blake, Wordsworth, Coleridge, Mary Shelley, Keats, and others in an age of social and aesthetic revolution, 1770-1840.

488 Victorian Literature 3 Prereq Engl 302. Advanced study of Tennison, Dickens, Eliot, Wilde, and others in the context of science, industrialization, and empire, 1832-1901.

489 20th/21st Century British and Postcolonial Literatures 3 Prereq Engl 302. Advanced study of modernist, postmodernist, and postcolonial writing from Britain, Ireland, Africa, the Indian subcontinent, and the Caribbean.

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.

494 [M] Advanced Topics in 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, British, or global literatures.

498 Internship V 1 (0-3) to 15 (0-45) 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 (0-3) to 4 (0-12) 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 3 Plays, poems, criticism, and background materials.

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.

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.

525 Seminar in English Literature of the 17th Century 3 May be repeated for credit; cumulative maximum 6 hours.

527 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 Engl 501. Theory and practice of the teaching of basic writers.

534 Theories and Methods of the Teaching of Technical and Professional Writing 3 Historical and theoretical bases for production of scientific discourse; training in its practical applications.

535 Problems in English Linguistics: Syntax and Phonology 3 May be repeated for credit; cumulative maximum 6 hours. Graduate-level counterpart of Engl 443; additional requirements. Credit not granted for both Engl 443 and 543. Cooperative course taught by WSU, open to UI students (ENGL 543).

543 Advanced Study of Major Writers 3 Prereq prior linguistics course or instructor permission. Graduate-level counterpart of Engl 444; additional requirements. Credit not granted for both Engl 444 and 544.

546 Topics in Teaching English as a Second Language 3 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 hours. Topics and controversies related to second language acquisition theory and pedagogy. Cooperative course taught by WSU, open to UI students (WSU 546).

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 Graduate-level counterpart of Engl 454; additional requirements. Credit not granted for both Engl 454 and 554.

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.

584 English Literature of the 16th Century 3 Graduate-level counterpart of Engl 484; additional requirements. Credit not granted for both Engl 484 and 584.

590 Research in English Studies 1 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Directed reading and interpretive problems in English studies.

591 The Teaching of Literature 3 Prereq two semesters full-time enrollment in program or consent of advisor. The theory and practice of designing and teaching courses in literature.
595 Topics in English 3 May be repeated for credit; cumulative maximum 6 hours. Language, English pedagogy, or literature of special or current interest; reading theories, teaching of writing, current literary theories.

597 Topics in Composition and Rhetoric 3 May be repeated for credit; cumulative maximum 6 hours. Rhetoric and composition theory and praxis.

598 Teaching Apprenticeship 1 May be repeated for credit. S, F grading.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Department of Entomology
entomology.wsu.edu
FNSH 166
509-335-5504


Insects and related arthropods are dominant components in all terrestrial and most freshwater ecosystems. There are more species of insects than all 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, environmental toxicology, and medical/vertebrate entomology. 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 to employ 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 an Entomology option http://www.catalog.wsu.edu/General/Academics/Info/10 ; Master of Science in Entomology, and Doctor of Philosophy (Entomology). Additional information can be obtained on the web at http://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.

INT 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, http://www.afs.wsu.edu/ . 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

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Term</td>
<td></td>
</tr>
<tr>
<td>Biol 106 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 101 [P] or 105 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
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<tr>
<td>IPM 201</td>
<td>2</td>
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<tr>
<td>Second Term</td>
<td></td>
</tr>
<tr>
<td>Biol 107 [B] or 120 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 102 [P] or 106 [P] (GER)</td>
<td>4</td>
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<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Math 140 [N] or Stat 212 [N] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Psych 105 [S] (GER)</td>
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</table>

Second 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>
<td>Ag Ex 201 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>CropS 201 or Hort 201</td>
<td>4</td>
</tr>
<tr>
<td>ES/RI 101 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>ES/RI 174</td>
<td>3</td>
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<tr>
<td>H D 205 [C] (GER)</td>
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<td>Second Term</td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Chem 345</td>
<td>4</td>
</tr>
<tr>
<td>ES/RI 150 [Q] or Zool 150 [Q] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>SoilS 201 [B] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Complete Writing Portfolio</td>
<td></td>
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</tbody>
</table>

Third Year

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>First Term</td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Bot 320</td>
<td>4</td>
</tr>
<tr>
<td>CropS 305</td>
<td>3</td>
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<tr>
<td>PI P 429</td>
<td>3</td>
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<tr>
<td>Second Term</td>
<td></td>
</tr>
<tr>
<td>Biol 372 [M]</td>
<td>4</td>
</tr>
<tr>
<td>Bot 332</td>
<td>4</td>
</tr>
<tr>
<td>Entom 343, 344</td>
<td>4</td>
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<tr>
<td>IPM 452</td>
<td>2</td>
</tr>
<tr>
<td>Elective/Option Course</td>
<td>3</td>
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<tr>
<td>Third Term</td>
<td>Year 3, Summer Session: IPM 399</td>
</tr>
<tr>
<td>Hours</td>
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Fourth Year

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>First Term</td>
<td></td>
</tr>
<tr>
<td>Entom 439</td>
<td>4</td>
</tr>
<tr>
<td>One from: Entom 348, 441, 448 or 450</td>
<td>1-4</td>
</tr>
<tr>
<td>Tier III Course (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Elective/Option Courses</td>
<td>6</td>
</tr>
</tbody>
</table>
INTEGRATED PEST MANAGEMENT - TREE FRUIT OPTION

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 GER's necessary for the BS degree.

First Year

First Term
Agri 189 2
Agri 252 4
Agri 261 5
Chem 110 5

Second Term
Agri 253 3
Agri 262 5
Biol 122 5
Engl 101 5

Third Term
Agri 254 2
Agri 263 5
Biol 123 5
Chem 111 5

Fourth Term
Agri 255 2
Agri 296 3

Second Year

First Term
Agri 242 4
Agri 264 5
Agri 296 5
Math 201 5

Second Term
Agri 218 3
Agri 265 5
Comm 220 5
Econ 202 5
Complete Writing Portfolio

Third Term
Agri 243 4
Agri 266 5
Agri 289 2
Agri 296 3

Fourth Term
Agri 207 5
Agri 296 3

Third Year
First Term
Arts & Humanities [H,G] (GER) 3
Bot 320 4
Chem 345 4
CropS 305 3
GenEd 110 [A] (GER) 3

Second Term
Biol 372 [M] 4
Bot 332 4
ES/RP 174 3
GenEd 111 [A] (GER) 3
IPM 452 2

Fourth Year
First Term
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Bot 325 3
CropS 360 [I] (GER) 3
Electives 6

Second Term
Entom 441 3
Hort 416 3
Hort 421 [M] 3
IPM 462 [M] 3
SoilS 441 3
Tier III Course [T] (GER) 3

MINORS

Entomology
A minimum of 16 hours is required for the minor and must include Entom 343, 344, 439, or 440 and 9 hours from: Entom 348, 441, 444, 449, 450, 456; IPM 201, 452, 462. 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

ENTOMOLOGY

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).

340 Agricultural Entomology 3 (2-3) Prereq
Program in Environmental Science and Regional Planning

esrp.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. Watts; Professors, A. Christenson, C. Ivory; Associate Professors, M. Forsyth, D. Gasi (Tri-Cities), K. Haas, H. Higgs (Vancouver), M. Holloman, M. Kinkel; Assistant Professors, A. Bawa (Vancouver), D. DeHart, M. DePrano, N. Meisel, I. Palmier, R. Safavi.

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 (within this degree, there are two options: an Art Studio option, and an Art History option), 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 BA 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 complete their studies by writing a thesis paper and developing knowledge of one foreign language.

Students with a BFA should have a working knowledge of the processes and media that produce works of visual art, including a clear understanding of the terms: subject matter, form, and content, as well as specialized technical, conceptual and imaginative expertise in a given field. 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 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
F A 102 3
GenEd 110 [A] (GER) 3

Second Term Hours
Communication Proficiency [C,W] (GER) 3
F A 103 3
GenEd 111 [A] (GER) 3
Math Proficiency [N] (GER) 3
Social Sciences [S,K] (GER) 3

Second Year

First Term Hours
F A 201 3
Intercultural Studies [I,G,K] (GER) 3
Physical Science [P] (GER) 4
Foreign language or Elective 4

Second Term Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
F A 202 3
Science elective [B,P] (GER) 4
Foreign language or Elective 4
Complete Writing Portfolio

Third Year

First Term Hours
Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
F A 301, 302 [M], or 404 [M] 3
F A 303 3
F A Studio Elective 3
300-400-level General Electives 4

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.

Complete Writing Portfolio

Math Proficiency [N] (GER) 3
F A 332, 333, or 381 3
F A 202 3
Arts & Humanities [H,G], Intercultural Studies
Second Term Hours

Elective 3
Intercultural Studies [I,G,K] (GER) 3
F A 340 or 350 3
F A 201 3
First Term Hours

GenEd 110 [A] (GER) 3
F A 110 3
F A 102 3
Engl 101 [W] (GER) 3
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.

First Term Hours

Third Year

First Term
300-400-level F A Elective 6
F A 304 3
Elective 3
Second Term Hours

Intercultural Studies [I,G,K] or Social Sciences [S,K] (GER) 3
F A 304 3
Social Sciences [S,K] (GER) 3
F A 332, 333, or 381 3
Math Proficiency [N] (GER) 3
Complete Writing Portfolio

F A 408 3
Second Term Hours

Tier III Course [T] (GER) 3
F A [M] 3
300-400-level F A Electives 3
First Term Hours

Fourth Year

First Term
300-400-level Electives 6
300-400-level F A Elective 3
F A [M] 3
Second Term Hours

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
F A 304 3
F A [M] 3
Third Year

First Term
300-400-level F A Elective 3
300-400-level F A Elective 3
F A [M] 3
Tier III Course [T] (GER) 3
Second Term Hours

Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
F A 304 3
Elective 3
Fourth Year

Elective 3
Social Sciences [S,K] (GER) 3
F A 303 3
F A 312 3
Science Elective (GER) 4
Social Sciences [S,K] (GER) 3
F A 304 3

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

F A 101 [H] Introduction to Art 3 For nonmajors.
Appreciation of various visual art forms; emphasis on contemporary period.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>302</td>
<td>Visual Concepts I 3 (0-6) Introduction to visual and conceptual studio art practice through an interdisciplinary approach to two-dimensional space.</td>
<td></td>
</tr>
<tr>
<td>303</td>
<td>Visual Concepts II 3 (0-6) Introduction to visual and conceptual studio art practice through an interdisciplinary approach to three-dimensional space.</td>
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<tr>
<td>310</td>
<td>Drawing 3 (0-6) Composition in pictorial space, visualization of ideas, drawing from life.</td>
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<tr>
<td>311</td>
<td>Figure Drawing 3 (0-6) Prereg F A 102, 110. Introduction to drawing the human figure.</td>
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</tr>
<tr>
<td>304</td>
<td>World Art History I 3 Historical survey of art and architecture from prehistory through 1450.</td>
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<tr>
<td>305</td>
<td>World Art History II 3 Historical survey of art and architecture from 1450 to the present.</td>
<td></td>
</tr>
<tr>
<td>306</td>
<td>Arts of Native North America 3 Diversity of visual forms, traditional and contemporary, within changing historical and cultural contexts.</td>
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<tr>
<td>307</td>
<td>Arts of Asia 3 Art and architecture of India, China and Japan within their historical, religious and cultural contexts.</td>
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<tr>
<td>308</td>
<td>Modern Art-19th Century 3 Prereg F A 201, 202. Modern art in the early modern period from around the globe.</td>
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</tr>
<tr>
<td>310</td>
<td>Arts of Ancient Greece and Rome 3 Prereg F A 201. The arts of ancient Greece, Etruria, and Rome from the Bronze Age to the early Christian era.</td>
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</tr>
<tr>
<td>311</td>
<td>The Arts of Renaissance Europe 3 Prereg F A 201 and 202. The arts of southern and northern Europe from 1300 to 1550.</td>
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</tr>
<tr>
<td>312</td>
<td>Women Artists I 3 Middle Ages through the 18th century.</td>
<td></td>
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<tr>
<td>313</td>
<td>Women Artists II 3 19th to 20th century.</td>
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<tr>
<td>320</td>
<td>Advanced Drawing 3 (0-6) May be repeated for credit. Prereg F A 110. Advanced projects using drawing media and process.</td>
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<tr>
<td>321</td>
<td>Drawing from the Body 3 (0-6) May be repeated for credit. Prereg F A 111. Continuation of F A 111. Contemporary discourse surrounding the body; exploration through the practice of drawing and performatives.</td>
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<tr>
<td>322</td>
<td>Beginning Painting 3 (0-6) F A 102, 110. Introduction to problems in painting; development of composition and color.</td>
<td></td>
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<tr>
<td>323</td>
<td>Intermediate Painting 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereg F A 320. Problems and ideas in painting.</td>
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<tr>
<td>324</td>
<td>Art, Science, and Technology 3 Prereg 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.</td>
<td></td>
</tr>
<tr>
<td>331</td>
<td>History of Photography 3 Historical survey of photography from its invention to the present; conceptual, cultural, and technical implications of the medium.</td>
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<tr>
<td>332</td>
<td>Beginning Photography 3 (0-6) Prereg F A 102. Camera and black/white film used in conjunction with studio and darkroom techniques; composition and aesthetic concepts introduced. Cooperative course taught by WSU, open to UI students (ART 204).</td>
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<tr>
<td>333</td>
<td>Introduction to Digital Media - Print and Web 3 (0-6) Prereg 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.</td>
<td></td>
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<tr>
<td>334</td>
<td>Introduction to Digital Media - Video and Sound 3 (0-6) Prereg F A 102 and 110. Principles and processes of digital media through video and sound-based projects; theoretical investigations and conceptual development.</td>
<td></td>
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<tr>
<td>335</td>
<td>Experimental Animation 3 (2-2) Same as Engl 337.</td>
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<tr>
<td>336</td>
<td>Ceramics 3 (0-6) Prereg F A 103 or 110. Hand building processes; glazing; firing.</td>
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<tr>
<td>337</td>
<td>Intermediate Ceramics 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereg F A 340.</td>
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<tr>
<td>338</td>
<td>Sculpture 3 (0-6) Prereg F A 103, 110. Composition of form in the three-dimensional space.</td>
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<tr>
<td>339</td>
<td>Intermediate Sculpture 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereg F A 350. May be repeated for credit; cumulative maximum 9 hours.</td>
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<tr>
<td>340</td>
<td>Special Topics—Drawing V 1-6 May be repeated for credit.</td>
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<tr>
<td>341</td>
<td>Special Topics—Painting V 1-6 May be repeated for credit.</td>
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<td>342</td>
<td>Special Topics—Digital Media V 1-6 May be repeated for credit.</td>
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<tr>
<td>343</td>
<td>Special Topics—Ceramics V 1-6 May be repeated for credit.</td>
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<tr>
<td>344</td>
<td>Special Topics—Sculpture V 1-6 May be repeated for credit.</td>
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<tr>
<td>345</td>
<td>Special Topics—Printmaking V 1-6</td>
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<tr>
<td>346</td>
<td>Special Topics—Photography V 1-6 May be repeated for credit.</td>
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<tr>
<td>347</td>
<td>Illustration and Rendering Techniques 3 (0-6) Same as AMT 368.</td>
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<tr>
<td>348</td>
<td>Introduction to Printmaking 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereg F A 102. Introduction to the fundamentals of printmaking, incorporating drawing, painting and collage; processes may include lithography, etching, relief and monotype.</td>
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<tr>
<td>349</td>
<td>Screenprinting 3 (0-6) Prereg F A 102. Introduction to the basic techniques, processes and history of screenprinting; collage, repetition, multiples, hand-drawn, photo and digital processes.</td>
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<tr>
<td>350</td>
<td>History of Photography 3 Historical survey of photography from its invention to the present; conceptual, cultural, and technical implications of the medium.</td>
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<tr>
<td>351</td>
<td>Beginning Photography 3 (0-6) Prereg F A 102. Camera and black/white film used in conjunction with studio and darkroom techniques; composition and aesthetic concepts introduced. Cooperative course taught by WSU, open to UI students (ART 204).</td>
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<tr>
<td>352</td>
<td>Intermediate Photography 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereg F A 381. Expansion of conceptual building in black/white darkroom and camera techniques; research and portfolio. Cooperative course taught by WSU, open to UI students (ART 404).</td>
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<tr>
<td>353</td>
<td>Digital Imaging 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereg F A 332; 381. Principles and processes of digital imaging including color theory, software, cameras, scanning, color management and output options.</td>
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<tr>
<td>354</td>
<td>Special Topics—Art History V 1-6 May be repeated for credit; cumulative maximum 100 hours.</td>
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<tr>
<td>355</td>
<td>Modern Theories of Art 3 May be repeated for credit; cumulative maximum 6 hours. Selected topics in 19th and 20th century theories of art.</td>
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<tr>
<td>356</td>
<td>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.</td>
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<tr>
<td>357</td>
<td>Contemporary Art: Theory and Practice 3 Contemporary theories of art and how those theories are developed.</td>
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<td>358</td>
<td>Art History Thesis V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereg art history major. Thesis directed by student's department; original research paper regarding visual culture using art historical research skills.</td>
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<tr>
<td>359</td>
<td>Advanced Painting 3 (0-6) or 60-12) May be repeated for credit. Prereg F A 321, major in fine arts. Continuation of F A 321. Advanced problems in painting. Six credits only with permission of instructor.</td>
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<tr>
<td>360</td>
<td>Print Based Media 3 (0-6) May be repeated for credit. Prereg F A 332. Principles and processes of visual communication in digital print; may include typography, image/text relationships, layout design and book arts.</td>
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<tr>
<td>361</td>
<td>Time Based Media 3 (0-6) May be repeated for credit; cumulative maximum 6 hours. Prereg F A 333. Principles and processes of video, installation, and sound based art; emphasis on conceptual development of experimental forms.</td>
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<tr>
<td>362</td>
<td>Interactive Media 3 (0-6) Prereg F A 332. Interactive possibilities in digital media including web-based projects, installation and physical computing.</td>
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<td>363</td>
<td>Advanced Ceramics V 3 (0-6) to 6 (0-12) May be repeated for credit. Prereg F A 341.</td>
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<tr>
<td>364</td>
<td>Material and Performance 3 (2-4) Prereg F A 102, 103, 340, or 350. Studio-based class providing understanding of contemporary issues related to fiber materials and performance.</td>
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<tr>
<td>365</td>
<td>Advanced Sculpture V 3 (0-6) to 6 (0-12) May be repeated for credit. Prereg F A 351. Six credits only with permission of instructor.</td>
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</table>
471 Advanced Printmaking 3 (0-6) May be repeated for credit. Prereq F A 370 or 371. Survey of digital and photo processes for printmaking.

483 Advanced Photography V 3 (0-6) to 6 (0-12) May be repeated for credit. Six credits only with permission of instructor. Prereq F A 382, major in F A. Advanced black/white darkroom and studio; research of historic and contemporary trends; discussion of personal direction; portfolio.

490 Gallery Procedures with Museum of Art V 3 (0-6) to 6 (0-12) May be repeated for credit; cumulative maximum 9 hours. By interview only. Introduction to art museums and galleries, including practicum in exhibition preparation, installation, art handling, collections.

493 Senior Exhibit 4 (0-8) Prereq certified BFA major. Independent study involving exhibit, written thesis and oral examination working with area coordinator. S, F grading.

495 Fine Arts Internship V 1 (0-3) to 12 (0-36) May be repeated for credit. Prereq Fine Arts major. Experience in work-related fine arts environments for practical application and experience. S, F grading.


499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

500 Graduate Art History 2 May be repeated for credit; cumulative maximum 6 hours. Prereq 9 hours undergraduate art history.

510 Graduate Drawing 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

511 Graduate Drawing 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

512 Graduate Drawing 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

520 Graduate Painting 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

521 Graduate Painting 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. May be repeated for credit; cumulative maximum 9 hours.

522 Graduate Painting 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

530 Graduate Digital Media 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

531 Graduate Digital Media 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

532 Graduate Digital Media 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

540 Graduate Ceramics 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

541 Graduate Ceramics 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

542 Graduate Ceramics 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

550 Graduate Sculpture 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

551 Graduate Sculpture 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

552 Graduate Sculpture 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

570 Graduate Printmaking 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

571 Graduate Printmaking 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

572 Graduate Printmaking 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

580 Graduate Photography 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

581 Graduate Photography 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

582 Graduate Photography 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

598 Graduate Seminar 2 May be repeated for credit; cumulative maximum 6 hours. Topics in contemporary issues, theory, and criticism.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

School of Food Science

http://sfs.wsu.edu/
Food Science & Human Nutrition Bldg, 106 509-335-4763 food.science@wsu.edu

Director, Denise Smith; Professors, B. Chew, R. Dougherty, C. Edwards, J. Powers, B. Rasco; Associate Professors, J. Hubberton, , C. Ross; Assistant Professor, K. Killinger; Instructor, F. Younce. UI Affiliates: Professors, C. Bohach, K. Huber, G. Moller, A. Paszczynski; Associate Professors, S. Münstch, G. Unlu; Assistant Professors, J.Bohlscheid, C. Nindo.

The School of Food Science offers courses of study in the undergraduate major field of food science. Students complete a prescribed course of study leading to the Bachelor of Science in Food Science with emphasis areas in processing, business, science, or enology/viticulture. Also offered are graduate degrees leading to Masters and Doctor of Philosophy in Food Science.

Food Science

The food science faculty and programs from the WSU Department of Food Science and Human Nutrition recently merged 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 both universities.

The coordinated teaching program in the School of Food Science expanded internship opportunities and job placement efforts, enhanced undergraduate and graduate student activities, and provides students with greater opportunities in course selection.

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 healthy and sustainable food products; and design new, safer, and more energy efficient food preservation methods. Food scientists strive to improve the microbial and chemical safety of foods, and 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 graduates begin careers in food quality assurance, food safety microbiology, technical sales, production management, product extension or development, regulatory affairs, or research in the food/allied industries or federal/ state regulatory agencies. Gaining a food science education provides students with a challenging and profitable career not only in the Pacific Northwest, but also nationally and internationally.

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 students 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 Requirements 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, sensory evaluation, and other specialized areas such as the processing and manufacture of cereal, dairy, fruit, and vegetable products, as well as cheese and wines. 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: 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) 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.

Other Opportunities
Numerous summer internships are available to gain practical hands-on training. Contact your advisor for more information. Graduate programs are also available that lead to the degrees of Master of Science and Doctor of Philosophy in Food Science.

Transfer Students
Students planning to transfer to WSU’s School of Food Science should coordinate their programs of study with advisors to select courses, which are applicable to the degree requirements. We especially recommend students take the appropriate chemistry, mathematics and other science courses required in our first two years of study, so students are on track when transferring to WSU.

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 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.

Students from other science majors who wish to obtain an advanced degree in food science are encouraged to apply as they may be well prepared for graduate studies. Students are required to take certain key courses required of food science undergraduates in addition to those needed for their graduate 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.

FOOD SCIENCE - FOOD SCIENCE MAJOR (120 HOURS)
The food science major is for the student interested in the science of food processing, quality, safety and product development. Students gain practical training 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
FS 110 3
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
EconS 101 [S] (GER) 3
FS 220 3
Phys 101 [P] (GER) 4

Second Term
A S 314 or MBioS 233 3
Chem 345 4
MBioS 303 4
MBioS 305 3
MBioS 306 2
Complete Writing Portfolio

Third Year
First Term
Arts & Humanities [H,G] (GER) 3
FS 303 3
FS 416 3
FS 417 2
Stat 212 [N] (GER) 4

Second Term
FS 432 3
FS 433 1
Intercultural Studies [I,G,K] (GER) 3
Electives 1 7

Fourth Year
First Term
FS 408 1
FS 460 3
FS 461 [M] 1
Tier III Course [T] (GER) 3
Electives 6

Second Term
FS 422 3
FS 423 1
FS 462 4
FS 470 3
FS 489 3
Electives 3

1 One semester of calculus (Math 140 or 171) is 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 Electives may be selected using the emphasis area list available in the FS department. All courses must be selected in consultation with an academic advisor.

Description of Courses

FOOD SCIENCE

FS 110 Introduction to Food Science 3 Chemistry, microbiology, and processing of food and food products; concepts of food preservation, packaging and marketing of foods; world food issues. Field trip required. Cooperative course taught jointly by WSU and UI (FS 110).

220 Food Safety and Quality 3 Regulation, safety, and wholesomeness of food products; microbiological, chemical, and physical risks associated with food; hazard analysis as related to food safety, processing and quality; sanitation and pest management principles; methods for analyzing the sensory qualities of food products; problem management associated with food quality assurance. Cooperative course taught jointly by WSU and UI (FS 220).


304 Cereal Products 2 Prereq Chem 345. Technical principles related to the production and commercial processing of legume and cereal foods. Field trip required. Cooperative course taught jointly by WSU and UI (FS 304).

401 Topics in Food Science V 1-3 May be repeated for credit; cumulative maximum 6 hours. Selected topics in food science.

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 FS 406 and 506. Cooperative course taught jointly by WSU and UI (FS 406).


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 jointly by WSU and UI (FS 416).
Food Science

417 Food Microbiology Laboratory 2 (0-6) Prereq c// in FS 416. Methods for enumeration, detection, and identification of spoilage and pathogenic microorganisms in foods. Cooperative course taught jointly by WSU and UI (FS 417).

418 (408) Oral Seminar in Food Science 1 May be repeated for credit; cumulative maximum 2 hours. Prereq junior standing; certified major in food science. Development of skills and communication tools and techniques for oral presentations of current food science research. Cooperative course taught jointly by WSU and UI (FS 418). Cooperative course taught jointly by WSU and UI (FS 418).

422 Sensory Evaluation of Food and Wine 3 Prereq Stat 212; FS 110 or V E 113; or by permission. Theory, principles and application of sensory evaluation techniques in appearance, aroma, flavor and texture of foods and wine. Credit not granted for both FS 422 and 522. Cooperative course taught jointly by WSU and UI (FS 422).

423 Sensory Evaluation of Food and Wine Lab 1 (0-3) Prereq FS 422 or c//; rec age 21 or older. Practical application of FS 422 including theory, principles and application of sensory evaluation techniques for appearance, aroma, flavor and texture of foods and wine. Credit not granted for both FS 423 and 523. Cooperative course taught jointly by WSU and UI (FS 423).

429 Dairy Products 3 Prereq Chem 345; MBioS 101 or 301; MBioS 303. Dairy chemistry, microbiology, sanitation, product development and processing from cow to consumer. Credit not granted for both FS 429 and 529. Cooperative course taught jointly by WSU and UI (FS 429).

430 Dairy Products Lab 1 (0-3) Prereq FS 429 or c//. Hands-on skills formulating, processing, evaluating and analyzing dairy products using communication and critical thinking skills. Credit not granted for both FS 430 and 530. Cooperative course taught jointly by WSU and UI (FS 430).

432 Food Engineering 3 Prereq FS 303. Food engineering for improving the efficiency of food processing operations and quality processed food; heat transfer, stream, air-vapor mixtures, refrigeration and fluid flow. Cooperative course taught jointly by WSU and UI (FS 432).

433 Food Engineering Lab 1 (0-3) Prereq FS 432 or c//. To enhance the learning experience of the students taking FS 432 through laboratories, problem sessions and group discussions. Cooperative course taught jointly by WSU and UI (FS 433).

460 Food Chemistry 3 Prereq Chem 345; MBioS 303. Fundamentals of food chemistry; composition of foods and the changes that occur during processing. Cooperative course taught jointly by WSU and UI (FS 460).

461 [M] Food Chemistry Laboratory 1 (0-3) Prereq FS 460 or c//. Experiments related to the properties, reactions and interactions of chemical components of foods. Cooperative course taught jointly by WSU and UI (FS 461).

462 Food Analysis 4 (2-6) Prereq Chem 345; MBioS 305; MBioS 306. Introductory food analysis; methods common to many food commodities. Cooperative course taught jointly by WSU and UI (FS 462).

464 Food Toxicology 3 Prereq MBioS 303. General principles of toxicological 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 FS 464 and 564. Cooperative course taught jointly by WSU and UI (FS 464).

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 FS 465 and 565. Cooperative course taught jointly by WSU and UI (FS 465).

466 Wine Microbiology and Processing Laboratory 1 (0-3) Prereq FS 465 or c//. Hands-on winemaking; application of chemical microbiological methods for wine analysis. Field trip required. Cooperative course taught jointly by WSU and UI (FS 466).

470 Advanced Food Technology 3 Prereq FS 303, 416, 433, 460 or c//. Physical principles of food preservation and recent advances in food technology. Credit not granted for both FS 470 and 570. Cooperative course taught jointly by WSU and UI (FS 470).

489 Food Product Development 3 (1-6) Prereq FS 303; FS 416; FS 460; senior standing. Course serves as a capstone experience for food science seniors, and will require the application of food chemistry, food processing/engineering, and microbiology course knowledge in formulating a new food product. Cooperative course taught jointly by WSU and UI (FS 489).

495 Internship in Food Science 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 a Winery 2 May be repeated for credit; cumulative maximum 4 hours. 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.

501 Topics in Food Science V 1-3 May be repeated for credit; cumulative maximum 6 hours. Selected topics in food science.

506 Evaluation of Dairy Products I 1 Graduate-level counterpart of FS 406; additional requirements. Credit not granted for both FS 406 and 506. Cooperative course taught jointly by WSU and UI (FS 506).

507 Evaluation of Dairy Products II 1 (0-3) Graduate-level counterpart of FS 407; additional requirements. Credit not granted for both FS 407 and 507. Cooperative course taught jointly by WSU and UI (FS 507).

510 Functional Foods and Health 3 Prereq MBioS 303 and one year of biology. Benefits of foods beyond basic nutrition; bioactive compounds in functional foods and nutraceuticals relating to disease prevention and health promotion. Cooperative course taught jointly by WSU and UI (FS 510).

511 Food Lipids 3 Rec biochemistry, food chemistry. Occurrence, structure, chemical and physical properties; functions of lipids in foods. Cooperative course taught jointly by WSU and UI (FS 511).

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 jointly by WSU and UI (FS 512).

513 Food Carbohydrates 3 Structure function relationships of polysaccharides within food systems as a function of their respective molecular structures and physical characteristics. Cooperative course taught jointly by WSU and UI (FS 513).

516 Food Laws 2 Prereq senior or graduate standing. Become familiar with government statutes and regulations that contribute to a safe, nutritious, and wholesome food supply. Understand more about the law and the US legal system relevant to the regulation of the manufacture and sale of food and supplements, including jurisdictional issues, administrative law, and tort, contract, corporate, environmental, labor, and criminal law issues. Cooperative course taught jointly by WSU and UI (FS 516).

517 Seminar Written 2 May be repeated for credit. Planning, writing, reporting, reviewing and evaluating current food-related research. Cooperative course taught jointly by WSU and UI (FS 517).

518 Seminar Oral 1 May be repeated for credit. Development of skills and communication tools and techniques for oral presentations of current food science research. Cooperative course taught jointly by WSU and UI (FS 518).

522 Sensory Evaluation of Food and Wine 3 Prereq Stat 212; FS 110 or V E 113; or by permission. Graduate-level counterpart of FS 422; additional requirements. Credit not granted for both FS 422 and 522. Cooperative course taught jointly by WSU and UI (FS 522).
Food Science/Human Nutrition

www.pharmacy.wsu.edu/nutrition
Wegner 105
509-335-5901

Human Nutrition - Professor and Department Chair, K. Meier; Professor, J. Shultz; Associate Professor, M. Edlefsen; Instructors, M. Clay, S. Fluegel.

Description of Courses

FOOD SCIENCE/HUMAN NUTRITION

FSHN

120 Food Preparation 3 Principles of food preparation, including physical and chemical changes, quality, composition and use of foods.

529 Dairy Products 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 jointly by WSU and UI (FSHN 529).

530 Dairy Products Lab 1 (0-3) Prereq c// FS 529. Graduate-level counterpart of FSHN 430; additional requirements. Credit not granted for both FSHN 430 and 530. Cooperative course taught jointly by WSU and UI (FSHN 530).

564 Food Toxicology 3 Prereq MBioS 303. Graduate-level counterpart of FSHN 464; additional requirements. Credit not granted for both FSHN 464 and 564. Cooperative course taught jointly by WSU and UI (FSHN 564).

570 Advanced Food Technology 3 Prereq FS 416, 433 or c//. Graduate-level counterpart of FSHN 470; additional requirements. Credit not granted for both FSHN 470 and 570. Cooperative course taught jointly by WSU and UI (FSHN 570).

583 Advances in Cereal Sciences and Technology 2 Prereq food chemistry, biochemistry or organic chemistry. Chemistry and functionality of cereal grains as related to their processing and product quality. Cooperative course taught jointly by WSU and UI (FSHN 583).

700 Master's Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

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.

201 Professional Dietetics 1 Structure, function and history of the American Dietetic Association, and educational requirements and roles of registered dietitian.

305 Nutrition Related to Fitness and Sport 3 Prereq FSHN 130 or 233. Same as Ath T 305. Cooperative course taught by UI, open to WSU students (FSHN 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 (FSHN 331).

350 Nutritional Counseling and Assessment 3 (2-2) 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. Selected topics in food science and human nutrition.

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.

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.


430 Human Nutrition, Intermediary Metabolism 3 Prereq Biol 251, FSHN 330, 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 c// 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.

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.

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.

478 Supervised Practice in Dietetics II 10 (0-30) Prereq 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.

495 Internship in 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.

499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.
505 Eating Disorders 2 Prereq graduate nutrition student or 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, open to WSU students (IFC 504).

508 Seminar Written 2 May be repeated for credit. Planning, writing, reporting, reviewing and evaluating current food-related research.

538 Readings in Foods and Nutrition 2 Graduate-level counterpart of FSNH 438; additional requirements. Credit not granted for both FSNH 438 and 538.

583 Advances in Cereal Science and Technology 2 Prereq 3 credits Food Chemistry, Biochem or Organic Chem. Chemistry and functionality of cereal grains as related to their processing and product quality. Cooperative course taught by WSU, open to UI students (FST 583).

700 Master’s Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Department of Foreign Languages and Cultures

www.forlang.wsu.edu
Thompson 110
509-335-4135

Professor and Department Chair, E. Gonzalez; Professors, J. Grenier-Winther (Vancouver), F. Manz-Robledo; Associate Professors, R. Halverson, C. Lupke, V. Navarro-Daniels, A. M. Rodriguez-Vivaldi; Assistant Professors, W. Brecher, M. Hubert, X. Liu; Clinical Professors, J. Bonzo, W. Cao, S. Davis, M. Glynn, M. Previto; Instructors, N. Niimi, I. Serna, C. Sanchez-Martín, E. Smith, C. Gulam (Vancouver), M. Lee-Lopez (Vancouver); Director, Language and Learning Resource Center, D. Winther; Assistant Director, C. Sanchez-Martín; Educational Technology Coordinator, C. Williams. Undergraduate Advising Program Manager, L. HoISTS.

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 supervised 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.

State-of-the-art technology and multimedia facilities in the classroom and at our Language Learning Resource Center enhance the learning experience.

The department offers courses of study leading to the degrees of Bachelor of Arts in Foreign Languages and Cultures (Chinese Language and Culture, French, and Spanish) and Master of Arts in Foreign Languages and Cultures (Spanish). Language minors are available in Chinese, French, German, Japanese, Russian, and Spanish. Language/ cultural minors are also possible in Film Studies, French Area Studies, German Area Studies, and Latin American Area Studies.

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. Teacher training is available in the language programs of French and Spanish.

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, www.forlang.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.

CHINESE LANGUAGE AND CULTURE REQUIREMENTS (120 HOURS)

First Year

First Term Hours
Chin 101 or higher (102, 203, 204) 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

Second Term Hours
Biological Sciences [B] (GER) 4
Chin 102 or higher (203, 204) 4
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) (210 rec) 3 or 4
Physical Sciences [P] (GER) 4
Elective1 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
Elective2 3
Complete Writing Portfolio

Third Year

First Term Hours
Chin 306, 307, or 308 3
Chin 361, 363, or 364 3
Chinese Area Studies Electroive3 3
Intercultural Studies [L,G,K] (GER) 3
Elective or For L 440 if teaching major4 3

Second Term Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Chin 306, 307, or 308 3
Chin 330 [M] 3
Science Electroive [B,P] (GER) 4
300-400-level Electives4 3

Fourth Year

First Term Hours
Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER) 3
Chin 306, 307, or 308 3
Chinese Area Studies Electroive5 3
300-400-level Electroive or For L 440 if teaching major6 6
**Second Term**  
**Hours**
- 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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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 an approved university minor in a second foreign language; 16 credits in a concentrated related field; 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.

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**Third Year**

**Complete Writing Portfolio**

- Fren 204 4
- Fren 110, 120, or 130 3

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**Fourth Year**

**First Term**  
**Hours**
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Fren 305 1
- Fren 306, 307 or 308 [M] 3
- French 310, 320, 350, or 361 3
- Intercultural Studies [G, I, K] (GER) 3
- Elective (For L 440 if teaching major) 3

**Second Term**  
**Hours**
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Fren 305 1
- Fren 306, 307 or 308 [M] 3
- Fren 310, 320, 350, or 361 3
- Science Elective [B], [P], or [Q] 4

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1. Electives must be represented by an approved university minor in a second foreign language; 16 credits in a concentrated related field; or a second major in another field.

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**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.

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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. 300-400-level courses taken pass/fail may not be included for credit toward the major. No course may be repeated for credit toward the major unless thus designated in the catalog. No course may count for both the major and the 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 advisers 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.

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**First Year**

**Hours**
- Fren 102 (if necessary), or higher (203 or 204) 4
- Chin 361, 363, or 364 3
- Fren 305 1
- Fren 306, 307 or 308 [M] 3
- Fren 310, 320, 350, or 361 3
- Science Elective [B], [P], or [Q] 4

**Second Year**

**Hours**
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Fren 305 1
- Fren 306, 307 or 308 [M] 3
- Fren 310, 320, 350, or 361 3
- Science Elective [B], [P], or [Q] 4

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1. Electives must be represented by a 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.
Minors

**Chinese, French, German, Japanese, or Spanish**

To fulfill requirements for a minor in Chinese, French, German, Japanese, or Spanish, a student must complete a total 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. A minimum of 9 credits with a letter grade must be taken in residence at WSU, of which 3 must be 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 towards a minor in the language may not be counted towards a major in International Area Studies (i.e., Asian Studies, Latin America Area Studies, German Area Studies, or French and Francophone Area Studies). 105, 205, and 305 may not count towards 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 of FL&C 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 towards a minor in the language may not be counted towards 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 towards the minor. For courses taken in Study Abroad Programs or as other transfer credits, please check with your advisor.

**Latin American and Spanish Area 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 of FL&C 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, or equivalent. Only courses thus designated in the Catalog may be repeated for credit toward the minor. Courses counting towards a minor in the language may not be counted towards 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 towards the minor. For courses taken in Study Abroad Programs or as other transfer credits, please check with your advisor.

**French Area and Culture Studies**

A minimum of 16 credits is required (options in French or Francophone Studies). 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 of FL&C 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 towards a minor in the language may not be counted towards 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 towards the minor. For courses taken in Study Abroad Programs or as other transfer credits, please check with your advisor.

**Description of Courses**

**ARABIC**

**Arabic**

101 **Elementary Modern Standard Arabic** I 4 (3-2) A beginning course in Modern Standard Arabic. Alphabet and writing system, pronunciation, vocabulary, and functional grammar. Greater emphasis on oral and written expression in second semester. Course delivery combining interactive video distance learning and classroom instruction. (Fall only). Cooperative course taught by UI, open to WSU students (ARBC 101).

**CHINESE**

**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** I May be repeated for credit; cumulative maximum 2 hours. Prereq Chin 101 or 102 or c/. 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 taught jointly by WSU and UI (CHIN 111).

120 [G] **Traditional Chinese Culture** 3 Cultural development of China from early times through the golden age of Chinese civilization. Taught in English.

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).

180 **Special Topics: Study Abroad** V 1-6 May be repeated for credit; cumulative maximum 6 hours. 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 202).

205 Intermediate Conversation 1 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Chin 203 or 204 or c/f, or equivalent proficiency. 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 (CHIN 361).

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. S, F grading.

305 Intermediate Grammar and Writing 3 Prereq Chin 204 with a grade of C or better, or equivalent. Grammar and active review of grammar. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (CHIN 308). S, F grading.

306 Intermediate Reading and Translation 3 Prereq Chin 204 with a grade of C or better, or equivalent. 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).

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 3 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).

405 Advanced Conversation 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Chin 305, equivalent proficiency, or by permission. 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 hours. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

CLASSICS

Clas 180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. S, F grading.

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. 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, open to WSU students (LATN 404).

441 Intermediate Greek I 4 Readings in classical Greek prose and poetry. Cooperative course taught by UI, open to WSU students (GREK 441).

461 Latin Literature of the Augustan Age 3 Cooperative course taught by UI, open to WSU students (LATN 461).

462 Latin Literature of the Augustan Age 3 Cooperative course taught by UI, open to WSU students (LATN 462).

463 Latin Literature of the Republic 3 Cooperative course taught by UI, open to WSU students (LATN 463).

480 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

FOREIGN LANGUAGES AND CULTURES

For L

100 Studies in Foreign Languages I V 1-4 May be repeated for credit; cumulative maximum 8 hours. Languages, topics, or foreign language skills/learning opportunities not covered by other 100-level courses. Cooperative course taught jointly by WSU and UI (FL 204).

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 inter-/intra-cultural communication of foreign cultures, plus customs, art, music, religion, fashion, food, et al.

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 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

200 Studies in Foreign Languages II V 1-4 May be repeated for credit; cumulative maximum 8 hours. Languages, topics, or foreign language skills/learning opportunities not covered by other 200-level courses. Cooperative course taught jointly by WSU and UI (FL 204).

210 Foreign Film and Lecture Series 1 (0-3) An introduction to foreign films through universal themes and their varied cinematic portrayal. S, F grading.
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 hours. 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 hours. 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; no foreign language proficiency required. Analysis and appreciation of foreign films, including filmic adaptations of literary works, to understand how cultures respond to contemporary issues.

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 540.

450 Descriptive Linguistics I 3
Same as Anth 450.

480 Special Topics: Study Abroad V 1-6
May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

495 Cooperative Education Internship V 1
(0-3) to 6 (0-18) May be repeated for credit; cumulative maximum 6 hours. Cooperative education internship with academic, business, industry or government units. S, F grading.

499 Special Problems V 1 (0-3) to 4 (0-12)
May be repeated for credit. S, F grading.

540 Research and Methods of Teaching Foreign Languages 3
Prereq graduate standing. Graduate level counterpart for 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 or by instructor permission. Taught in English. The use of technology in the foreign language classroom; hands-on experience with equipment and multi-media materials.

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 V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

FRENCH

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.

104 intensive French: Foundations of Language and Culture 4
Intensive first-year French, emphasizing reading, writing, oral expression and comprehension, cultural awareness. Serves as a prerequisite for Fren 203. Not open to native speakers except with permission. Credit not granted for Fren 101/102 and 104.

105 Elementary Conversation 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Fren 101 or 102 or c//. Elementary-level conversation practice in small groups with a native/near-native speaker; not open to native speakers except with permission. Credit not granted for Fren 101/102, and 104.

106 French for the Professions 1 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

110 First Semester 3
French for the Professions 1 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

111 Second Semester 3
French for the Professions 1 May be repeated for credit; cumulative maximum 6 credits. S, F grading.

115 French Literature 3
Taught in English. Introduction to French literature. S, F grading.

120 [H] French Culture 3
Taught in English. Cultural history of France from beginnings to present; comparison of French and American cultures.

180 Special Topics: Study Abroad V 1-6
May be repeated for credit; cumulative maximum 6 hours. 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 c//, or equivalent proficiency. 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 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

305 Intermediate Conversation II 1
May be repeated for credit; cumulative maximum 2 hours. Prereq Fren 203; Fren 204; or equivalent proficiency. 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 [H] French and Francophone Film 3

320 [H] French/Francophone Culture 3

350 [H] Introduction to French Literature 3
May be repeated for credit; cumulative maximum 6 hours. Prereq either Fren 306, 307, or 308. Taught in French. French and Francophone novels, short stories and plays.

361 French for the Professions 3
Prereq Fren 204 with a grade of C or better, or equivalent. Communication in French for professional purposes; telephone and meeting role-plays, letter- and resume-writing, discussions of current events in the Francophone world.

380 Special Topics: Study Abroad V 1-6
May be repeated for credit; cumulative maximum 6 hours. 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, equivalent proficiency, or by permission. Advanced-level conversation practice in small groups with a native speaker. S, F grading.
408 [M] Advanced French 3 Prereq Fren 308 with a grade of C or better, or equivalent. Systematic development of language skills at the advanced level.

410 [T] French Film in Translation 3 (2-2) Exciting view of French and Francophone cinema. All viewings, discussions, and writings in English.

420 [T] French Culture Through Wine 3 French societal and cultural heritage through the geography, history, production, legislation, and consumption of wine. Taught 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.

499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

GERMAN

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. Prereq Ger 101 or 102 or c//. 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] 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.

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. 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 c//, or equivalent proficiency. 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 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

205 Intermediate Conversation II 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Ger 203; Ger 204; or equivalent proficiency. Conversation practice in small groups with native/near-native speakers. Not open to native speakers except with permission. S, F grading.

207 Intermediate Speaking and Listening 3 Prereq Ger 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.

305 Intermediate Conversation II 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Ger 203; Ger 204; or equivalent proficiency. Conversation practice in small groups with native/near-native speakers. Not open to native speakers except with permission. S, F grading.

310 [H] German Film 3 Prereq either Ger 306, 307, or 308. Study of important German films. Taught in German.

320 German Culture 3 Prereq either Ger 306, 307, or 308. Introduction to German culture. Taught in German. Cooperative course taught jointly by WSU and UI (GERM 305).

350 Introduction to German Literature 3 Prereq either Ger 306, 307, or 308. Survey of masterpieces of German literature. Taught in German.

380 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

408 [M] Advanced Grammar and Writing 3 Prereq Ger 308, or equivalent. Development of advanced proficiency in writing.

450 [M] Seminar in German Studies - Themes 3 May be repeated for credit; cumulative maximum 6 hours. Prereq two Ger 300-level courses excluding Ger 305. Seminar on important themes in German studies. Taught in German. Cooperative course taught jointly by WSU and UI (GERM 420).

451 [M] Seminar in German Studies - Authors 3 May be repeated for credit; cumulative maximum 6 hours. Prereq two Ger 300-level courses excluding Ger 305. Seminar on important authors in German studies. Taught in German. Cooperative course taught jointly by WSU and UI (GERM 421).

452 [M] Seminar in German Studies - Genres 3 May be repeated for credit; cumulative maximum 6 hours. Prereq two Ger 300-level courses excluding Ger 305. Seminar on important genres in German studies. Taught in German.

ITALIAN

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 jointly by WSU and UI (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 reading, writing, and pronunciation. Not open to native speakers except with permission. Cooperative course taught jointly by WSU and UI (ITAL 102).

105 Elementary Conversation 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Ital 101 or 102 or c//. 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] 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 (GREEK 341).

102 Elementary Greek 4 Continued development of basic skills in reading, writing, and pronunciation. Not open to native speakers except with permission. Cooperative course taught jointly by WSU and UI (GREEK 342).
JAPANESE

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 UI, open to WSU students (JAPN 102).

105 Elementary Conversation I 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Japn 101 or 102 or c//. 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 UI, open to WSU students (JAPN 105). 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 hours. 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. Not open to native speakers except with permission. Cooperative course taught by UI, open to WSU students (JAPN 203). S, F grading.

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 UI, open to WSU students (JAPN 204).

205 Intermediate Conversation I 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Japn 203 or 204 or c//, or equivalent proficiency. 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 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

305 Intermediate Conversation II 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Japn 203; Japn 204; or equivalent proficiency. Conversation practice in small groups with native/near-native speakers. Not open to native speakers except with permission. Cooperative course taught by UI, open to WSU students (JAPN 305). S, F grading.

306 Intermediate Reading and Translation 3 Prereq Japn 204 with a grade of C or better. Vocabulary building, contrastive English-Japanese expressions, development of skills of increase 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.

320 [G,M] Issues in East Asian Ethics 3 Philosophical foundations of ethical thought in East Asia; informed responses to modern ethical dilemmas. Taught in English. Cooperative course taught by WSU, open to UI students (CHIN 320).


380 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. 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 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

RUSSIAN

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 (RUS 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 (RUS 102).

105 Elementary Conversation 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Rus 101 or 102 or c//. 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 (RUS 105).

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. 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. 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 (RUS 203).

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 (RUS 204).

205 Intermediate Conversation I 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Rus 203 or 204 or c//, or equivalent proficiency. 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 (RUS 205). S, F grading.

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.
305 Intermediate Conversation II 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Rus 203; Rus 204; or equivalent proficiency. 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.

321 [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 312).

361 Russian for the Professions 3 Prereq Rus 204 with a grade of C or better, or equivalent. Communication in Russian for professional purposes; telephone and meeting role-plays; letter and resume writing; discussions of current events in the Russian-speaking world. Cooperative course taught by WSU, open to UI students (RUSS 361).

380 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. 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).

462 History of Imperial Russia 3 Same as Hist 462.

463 [M] History of the Soviet Union 3 Same as Hist 463.

480 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

SPANISH

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. Prereq Span 101 or 102 or c/. 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.

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. 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.

205 Intermediate Conversation I 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Span 203 or 204 or c/l, or equivalent proficiency. 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 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

305 Intermediate Conversation II 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Span 203; Span 204; or equivalent proficiency. Intermediate-level conversation practice in small groups with a native/near native speakers. Not open to native speakers except with permission. 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; emphasis on pronunciation and phonetics. Not open to native speakers except with permission.

308 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.

310 [H] Peninsular Spanish Film 3 Prereq either Span 306, 307, or 308. Study of important Spanish films. Taught in Spanish.

311 [G] Latin American Film 3 Prereq either Span 306, 307, or 308. Variable content seminar that focuses on the study of culture through films; taught in Spanish.

320 [H] Peninsular Spanish Culture 3 Prereq either Span 306, 307, or 308. Study of the culture of Spain. Taught in Spanish.


350 Introduction to Peninsular Spanish Literature 3 Prereq either Span 306, 307, or 308. Introduction of literary analysis and the history of literature in Spain.

351 Introduction to Latin American Literature 3 Prereq either Span 306, 307, or 308. Introduction to literary analysis and the history of literature in Latin America. Taught in Spanish.

361 [C] Spanish for the Business Professions 3 Prereq Span 204. Specialized language training for business professionals including basic concepts and economies of Hispanic countries.

362 [C] Spanish for Health Professions 3 Prereq Span 204. Specialized language training for health professionals focusing on the main systems of human anatomy.

363 [C] Spanish for Law Enforcement 3 Prereq Span 204. Specialized Spanish language training for law enforcement professionals.

364 [C] Spanish for Veterinarians 3 Prereq Span 204. Spanish language and culture for veterinary professionals; client-veterinarian situations with specialized terms considering cultural aspects.

365 [C] Spanish for Translation and Interpretation Professions 3 Prereq Span 204. Specialized Spanish language training in written translation; spoken interpretation techniques to facilitate high quality cross-cultural communication.

380 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. 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 Span 305, equivalent proficiency, or by permission. Advanced-level conversation practice in small groups with a native speaker. S, F grading.

407 Advanced Speaking and Listening 3 Prereq Span 307, or equivalent. Systematic development of speaking and listening proficiency at the advanced level.

408 [M] Advanced Grammar and Writing 3 Prereq Span 308, or equivalent. Development of advanced proficiency in writing.

420 [T, D] Cultural Topics 3 Prereq one Tier I; three Tier II courses. Variable content on Peninsular and/or Latin American cultural topics.

430 [T] Masterpieces in Spanish Literature 3 Prereq one Tier I; three Tier II courses. Taught in English. Variable topic seminar on Spanish literature.

450 [M] Seminar in Spanish Studies - Themes 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.
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 degrees offered through Liberal Arts are the Bachelor of Arts in Humanities, and Bachelor of Arts in Social Sciences. The degrees 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.

The Paul G. Allen School for Global Animal Health (Allen School) provides innovative solutions to global infectious disease challenges through research, education, global outreach, and application of disease control at the animal-human interface. It advances science, people, and policy to discover novel approaches for disease prevention and control. The curriculum is designed to train individuals with strong backgrounds in the global context of disease prevention and control. The curriculum is research intensive emphasizing the identification of knowledge gaps that constrain progress in improved global health, acquisition of contemporary and innovative investigative skills to address these gaps, and understanding of policy pathways to achieve and enable implementation of health solutions. Specialization includes animal and...
zoonotic disease epidemiology and pathogenesis, economic burden of disease and effect on food security, emerging and endemic disease surveillance and diagnosis, infectious diseases epidemiology and pathogenesis, vaccine discovery and development, implementation strategy and evaluation, and animal health policy and metrics.

The program offers flexibility for students with backgrounds in any of the core disciplines to pursue advanced training in global animal health, with independent study and original research in areas of the student's own interests. The interdisciplinary nature of the program assures the student of interaction with scientists representing a wide range of research interests in global health and provides the student with a broad choice of specialized facilities which are available in the cooperating academic units.

**Description of Courses**

**GLOBAL ANIMAL HEALTH**

**GAH**

500 Animal Health and Food System Policy and US State Government | Policy-making process relating to trade, animal health and food systems at the state and provincial levels.

501 Animal Health and Food System Policy and US National Government | Policy-making process relating to trade, animal health and food systems at the national level.

502 Animal Health and Food System Policy and Intergovernmental Organizations | International policy-making emphasizing the impact of international standards and policy of food safety, animal health, trade and public health.

**Global Studies**

[www.ip.wsu.edu/global](http://www.ip.wsu.edu/global)

**International Programs, Bryan 206**

509-335-2542

Interim Director of Global Learning and Professor, P. Arasu.

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 is 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 3 courses from one of the following modules:

- Regional and Comparative Literatures/Film: Chln/Span 111, Chin 130, Engl 333, 334, 335, For L 410, Fren/Ger/Span 110, Fren/Ger/Rus/Span 130, Fren/Rus 430.
- Art, Music and Folklore: Anth 301, 303, 404, For A 404, 405, Mus 163, 265, 360, 361, 362, 363, Phil 430.
- Language: 2 semesters of second year 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

Chair and Professor, J. S. Coyne; Associate Professor, J. Kennedy; Assistant Professor, S. Murphy; Clinical Associate Professor, G. Smith.

The Department of Health Policy and Administration (HPA) offers the Master of Health Policy and Administration degree at WSU Spokane. The mission of the Department of Health Policy and Administration is: 1) to offer a world-class graduate education to the next generation of health administrators, policy analysts, and health services researchers; and 2) to generate new knowledge and competencies that improve access, quality, efficiency, and equity of health services, both domestically and internationally. The vision of the WSU Department of Health Policy and Administration is to expand and improve our nationally recognized health administration education program and to enhance our portfolio of extramurally funded research.

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; 3-5 credit internship; capstone course, Strategic Management and Marketing; and 3 credit required graduate project or optional thesis. Before students may enroll in the Program, they must satisfy two undergraduate prerequisites: basic financial accounting (e.g., Accounting 230, Introduction to Financial Accounting) and microeconomics (e.g., Economics 101, Fundamentals of Microeconomics), and computer skills (word processing, spreadsheet competence). Prerequisites must be completed prior to enrollment in any HPA courses.

The graduate program in Health Policy and Administration is accredited by the Commission on Accreditation of Healthcare Management Education (CAHME). 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, California, 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 15 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 at least 1000, or a GMAT aptitude score 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 http://www.hpa.spokane.wsu.edu.

Description of Courses

HEALTH POLICY AND ADMINISTRATION

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, relationships 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. Cooperative course taught by WSU, open to UI students (ECON 450).

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.

517 Health Care and Human Resources Management
   3 Managing human resources and health professionals in diverse health care environments such as hospitals, clinics, home health care agencies and pharmaceutical firms.

519 Biostatistics and Epidemiology for the Health Sciences
   3 Prereq graduate standing. Application of quantitative methods to problems in the health sciences; statistical analysis software.

520 Research and Evaluation Methods
   3 Prereq statistics or HPA 519. Basic research and evaluation methods for health care professionals.

530 Health Care Information Systems
   3 Key attributes of health care information systems and their evolution in health care environment.

570 Marketing for Health Care Organizations
   1 Prereq graduate standing. Basic marketing concepts, principles, and issues related to marketing public and private health care.

572 Health Care Ethics
   3 Ethical issues affecting health care institutions, professionals and consumers.

573 Comparative International Health Care
   3 Analysis of key attributes of health care in selected countries and comparisons with the US health care system.

574 Rural Health Care in America
   3 The unique characteristics, professional opportunities, problems and reform alternatives in rural health care.

579 Mental Health Policy and Law
   3 Prereq professional standing. Policies regulation, negligence, consent, privacy; civil commitment, treatment rights, guardianship, trial competency, insanity defense, sex offenders, execution capacity, entitlements, discrimination.

580 Disability and Aging Policy
   3 Prereq graduate standing. Policy aspects of disability, aging and chronic illness; including work disability, health and long term care, rationing, gender and class.

590 Strategic Management and Marketing
   3 Prereq HPA 511, 515. Key components and processes in strategic planning.

597 Internship
   V 1-5 May be repeated for credit; cumulative maximum 5 hours. Prereq HPA 500. Student experience in professional work settings, S, F grading.

599 Special Topics in Health Policy and Administration
   V 1-3 May be repeated for credit; cumulative maximum 9 hours.

600 Special Projects or Independent Study
   V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination
   V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study and/or Examination
   V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Department of History

libarts.wsu.edu/history
Wilson-Short 301
509-335-5139


Offerings in the field of history may be classified as American, Asian, European, and Latin American.

The Department of History’s Undergraduate Degree Program is designed to produce several outcomes. We expect students who complete the requirements for an undergraduate major in History to: 1) express sophisticated and abstract concepts clearly in writing; 2) be familiar with the nature of historical argument and methodologies; 3) frame research topics and do research at an appropriate undergraduate level; 4) have a mastery of the broad outlines of historical developments, themes, issues, and patterns; 5) develop critical thinking skills that will allow and encourage them to become life-long learners.

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**

- Arts & Humanities [H,G] (GER) 3
- Biological [B] or Physical [P] Sciences (GER) 3
- EconS 102 [S], Pol S 101 [S], or Psych 105 [S] (GER) 3
- GenEd 111 [A] (GER) 3
- Hist 102 3

- Second Term
  - Hours
  - 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**

- Hours
  - 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 [L,G,K] (GER) 3
  - Complete Writing Portfolio 3

**Third Year**

**First Term**

- Hours
  - 300-400-level Hist Electives 6
  - Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER) 3
  - Hist 300 [M] 3
  - T & L 301 3

**Second Term**

- Hours
  - 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**

**First Term**

- Hours
  - 300-400-level Hist Elective 3
  - Hist 469 [M] 3
  - T & L 464 3
  - T & L 465 3
  - T & L 466 2

**Second Term**

- Hours
  - EdPsy 468 3
  - Hist 480 3
  - T & L 467 3
  - T & L 469 2
  - T & L 470 3

**Fifth Year**

**First Term**

- Hours
  - T & L 415 16

1 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**

**First Term**

- Hours
  - Arts & Humanities [H,G] (GER) 3
  - Engl 101 [W] (GER) 3
  - GenEd 111 [A] (GER) 3
  - Math Proficiency [N] (GER) 3 or 4
  - Science Elective (GER) 4

**Second Term**

- Hours
  - Biological [B] or Physical [P] Sciences (GER) 4
  - Communication Proficiency [C,W] (GER) 3
  - GenEd 111 [A] (GER) 3
  - Intercultural Studies [L,G,K] (GER) 3
  - Social Sciences [S,K] (GER) 3

**Second Year**

**First Term**

- Hours
  - 100-200-level Hist Electives 6
  - Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER) 6
  - Biological [B] or Physical [P] Sciences (GER) 4

**Second Term**

- Hours
  - 100-200-level Degree Program Course 3
  - 100-200-level Hist Electives 6
  - Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
  - Foreign Language, if necessary, or Elective 3 or 4
  - Complete Writing Portfolio 3

**Third Year**

**First Term**

- Hours
  - 100-200-level Hist Electives 3
  - 300-400-level Hist Electives 3
  - Foreign Language, if necessary, or Elective 3 or 4
  - Hist 300 or Hist Elective (any level) 3

**Second Term**

- Hours
  - 300-400-level Degree Program Course 3
  - 300-400-level Electives 6
  - 300-400-level Hist Elective 3

**Fourth Year**

**First Term**

- Hours
  - 300-400-level Hist Electives 3
  - 300-400-level Electives 3
  - 300-400-level Hist Electives 3
**History**

**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 based liberal arts education.

To certify in the history pre-law option, a student must have earned at least a 2.50 cumulative gpa. A grade of C or better is required in all History courses used to fulfill the requirements for this major.

It is assumed that prior to the junior year that students will have completed courses meeting General Education and College of Liberal Arts requirements for graduation.

### First Year

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### Second Year

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### Fourth Year

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<td>Tier III Course [T] (GER)</td>
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### Third Year

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 credits 1

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### Second Year

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<td>Engl 201 [W], 301 [W], or 302 [W] (GER)</td>
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### Fourth Year

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Hist 480 3
T & L 467 3
T & L 469 2
T & L 470 3

Fifth Year

First Term  Hours
T & L 415 16

1 Choose 2 from 2 categories: 230, 231; 270, 271; 272, 273; 275.
2 Psych 105 is required for admission to the Teacher Preparation Program; one from Eng 201, 301, 302 is also required for admission.
3 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.
4 An approved seminar, Hist 469 or Soc 320, may double-count as a major course.
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

GENERAL EDUCATION

GenEd

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.

HIST

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.

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.

274 [G] Introduction to African History 3 Survey of the history of Africa from human origins to present.

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.

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 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.


322 [H,D] US Popular Culture Since 1930 3 Movies, radio, television, sports, music, and other popular arts in historical context.


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.

336 [H,D] History of Sexualities 3 Same as W St 336.

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.
History of American Indian Sovereignty and Federal Indian Law
3 The history of sovereignty and Federal Indian Law against the backdrop of treaties and trust responsibility.

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.

American Diplomatic History in the 20th Century
3 Credit not granted for both Hist 412 and 512.

Early American History to 1750
3 The cultures and interactions of Native Americans, Europeans, and Africans; development of colonial American societies and institutions.

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.

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.

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.

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.

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.

United States, 1945-Present
3 Rise of America through 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.

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.

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.

Radicals, Reformers, and Romantics: 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.

The City in History
3 Preq requirement 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.

Workers Across North America
3 Credit not granted for both Hist 432 and 532.

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.

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.

European Expansion Overseas, 1400-1800
3 Preq 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.

Imperialism in the Modern World
3 Preq completion of one Tier I and three Tier II courses. History of imperialism (colonial, economic, territorial, cultural) since 1800 as a global phenomenon.

Topics in Public History
3 Preq junior standing. Credit not granted for both Hist 427 and 527.

Slavery, Abolition and Emancipation in World History
3 Preq junior standing. History of slavery and abolition as a worldwide phenomena; trends and debates in historiographical literature.

The Early Middle Ages, 330-1050
3 Western Europe, the Byzantine Empire, and Islam from the dissolution of classical Roman civilization to the 11th century revival.

The Later Middle Ages, 1050-1500
3 Western Europe and Byzantine civilizations from the 11th century revival to the advent of the Renaissance in the West.

The Renaissance
3 Preq completion of one Tier I and three Tier II courses. Political, cultural, and religious history of Europe, 1300-1500.

The Reformation
3 Political, cultural, and religious history of Europe, 1500-1650.
Europe in the French Revolutionary and Napoleonic Era, 1789 to 1815 3 Credit not granted for both Hist 447 and 547.

Modern Europe as Reflected In Art 3 Early Modern Europe as reflected in architecture and the visual arts.

Europe and Two World Wars, 1914-1945 3 Political, intellectual, economic, and international aspects of European life during and between two world wars. Credit not granted for both Hist 449 and 549.

Europe Since 1945 3 Europe from the end of World War II to the present; the Cold War, European integration, social and intellectual life. Credit not granted for both Hist 450 and 550.

Conservatism, Liberalism, and Socialism: Europe, 1815-1870 3 The consolidation of industrial society and the nation-state in 19th-century Europe. Credit not granted for both Hist 453 and 553.

Nationalism and National Conflict: Europe, 1870-1914 3 The rise of Europe to world predominance and the crisis of the European order. Credit not granted for both Hist 454 and 554.

The Great War 1914-1920 3 Political, social and cultural history of the first global war from the Sarajevo assassination through the post-war peace settlements.

Modern Britain 3 Britain and the Empire from the Napoleonic wars to the present. Credit not granted for both Hist 459 and 559.

History of Imperial Russia 3 History and culture of imperial Russia from Peter the Great to the 1905 revolution. Credit not granted for both Hist 462 and 562.

History of the Soviet Union 3 The Russian revolutions and the Soviet regime: 1905 to the present. Credit not granted for both Hist 463 and 563.

Comparative Genocide 3 Prereq junior status, 6 hours in Hist. Study of the concepts, history, and consequences of genocide in the global perspective through theoretical and case study analysis. Credit not granted for both Hist 464 and 564.

History of the Cold War, 1944-present 3 Prereq completion of one Tier I and three Tier II courses. Exploration of the 50 year “cold” conflict between the US and USSR and its political, social, economic, and cultural consequences for the world.

Modern France 3 The history of France from the revolution of 1789 to the present. Credit not granted for both Hist 467 and 567.

Hitler and Nazi Germany 3 Origins and rise of Nazism; state, society and culture in the Third Reich; Nazi racial ideology; world war; the Holocaust. Credit not granted for both Hist 468 and 568.

Seminar in History 3 May be repeated for credit. Prereq Hist 300.
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, andRomantics: The Impact 3 Graduate-level counterpart of Hist 423; additional requirements. Credit not granted for both Hist 423 and 523.

524 Seminar in the American West 3 May be repeated for credit; cumulative maximum 9 hours. Prereq graduate standing. Research seminar in the history of the American West.

525 Seminar in American History 3 May be repeated for credit. Cooperative course taught jointly by WSU and UI (HIST 501).

527 Public History: Theory and Methodology 3 Graduate-level counterpart of Hist 427; additional requirements. Credit not granted for both Hist 427 and 527. Cooperative course taught by WSU, open to UI students (HIST 504).

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 S30.

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 S32.

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 S33.

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 S34.

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 S39.

540 Seminar in History 3 May be repeated for credit. Graduate standing; Hist 700 or Hist 800 or c/.

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.

559 Modern Britain 3 Graduate-level counterpart of Hist 459; additional requirements. Credit not granted for both Hist 459 and S59.

560 Field Course in Early European History 3 May be repeated for credit; cumulative maximum 9 hours. Readings and issues in early European history.

561 Field Course in Early Modern European History 3 Readings and interpretive problems in early modern European history (1450 - 1750).

562 History of Imperial Russia 3 Graduate-level counterpart of Hist 462; additional requirements. Credit not granted for both Hist 462 and S62.

563 History of the Soviet Union 3 Graduate-level counterpart of Hist 463; additional requirements. Credit not granted for both Hist 463 and S63.

564 Comparative Genocide 3 Graduate-level counterpart of Hist 464; additional requirements. Credit not granted for both Hist 464 and S64.

567 Modern France 3 Graduate-level counterpart of Hist 467; additional requirements. Credit not granted for both Hist 467 and S67.

568 Hitler and Nazi Germany 3 Graduate-level counterpart of Hist 468; additional requirements. Credit not granted for both Hist 468 and S68.

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. Cooperative course taught jointly by WSU and UI (HIST 555).

570 World History Theory and Methods 3 May be repeated for credit; cumulative maximum 9 hours. Historiographic overview of the field of world history.

571 Topics in World History 3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Readings in themes and literature of a global approach to history.

572 Middle East Since World War I 3 Graduate-level counterpart of Hist 472; additional requirements. Credit not granted for both Hist 472 and S72.

574 Modern South Asia: Community and Conflict 3 Graduate-level counterpart of Hist 474; additional requirements. Credit not granted for both Hist 474 and S74.

575 Field Course in Women's History 3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Readings and interpretive problems in women's history.

576 Revolutionary China, 1800 to Present 3 Graduate-level counterpart of Hist 476; additional requirements. Credit not granted for both Hist 476 and S76.

577 Modern Japanese History 3 Graduate-level counterpart of Hist 477; additional requirements. Credit not granted for both Hist 477 and S77.

578 Field Course in Asian History 3 May be repeated for credit; cumulative maximum 9 hours. Readings and interpretive problems in Asian history.

580 Historiography 3

595 The Teaching of History in College V 1-2 May be repeated for credit; cumulative maximum 5 hours. Theory, problems, and methods of teaching history at the college level.

596 Topics in American Studies 3 May be repeated for credit; cumulative maximum 9 hours. Graduate-level counterpart of Hist 496; additional requirements. Credit not granted for both Hist 496 and S96.

597 Seminar in History 2 or 3 May be repeated for credit.

598 History Internship V 1 (0-6) to 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. Graduate-level counterpart of Hist 498; additional requirements. Credit not granted for both Hist 498 and S98.

599 History Colloquium 1 May be repeated for credit; cumulative maximum 4 hours. Weekly discussions and presentations on historical topics or current faculty and graduate student research. S, F grading.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.
Honors College

honors.wsu.edu
Honors Hall 130
509-335-4505
Libby Walker, 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 a 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 Honors College are open only 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 Honors College requires approximately the same number of total semester hours as required by the General Education Program. Students who complete the UHC requirements are not required to complete the General Education Requirements for graduation.

Honors College students are required to complete the courses specified in the schedule of studies. The mathematics requirement for students in the 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. In addition, students must participate in a study abroad experience and complete at least six credits. 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. With sufficient high school preparation, an online examination will be 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 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 an 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 requirement
Foreign Language competency requirement
Science 298 (fall only)
Science 299 (spring only)

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: Application of Arts and Humanities to Global Issues
UH 390 Case Study: Application of Science to Global Issues
UH 450 Honors Thesis

1 Students 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 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.

2 Assessed proficiency in a second language at the intermediate level. May be completed at any time before graduation. Check with an Honors advisor for specifics.

3 Science majors complete required lab sciences (8 credits)

4 Three 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/continent of study abroad experience), UH 330, UH 350, UH 430, and UH 450 (focus on an international topic).

Description of Courses

UNIVERSITY HONORS

Chem 116 – Chemical Principles Honors II
Econ 198 – Economics Honors
Engl 298 – Writing and Research Honors
Math 182 – Honors Calculus II
Math 230 – Honors Introductory Linear Algebra
Math 283 – Honors Calculus III
Phys 205 – Physics Honors I
Phys 206 – Physics Honors II
Sci 298 – Sciences for Honors Students I
Sci 299 – Sciences for Honors Students II

U H

198 Honors Freshman Experience 1 Making a successful transition to college including advising, schedule planning and undergraduate research opportunities. S, F grading.

270 Principles and Research Methods in Social Science 3 Scholarship in social sciences; exposure to theoretical frameworks.

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 lab science course or c/f; science or engineering majors. Exploration of how scientific knowledge is acquired, refined and advanced; hands-on experience with scientific scholarship
301 University Scholars Lecture Series 1 May be repeated for credit; cumulative maximum 3 hours. Themed lecture series and discussion seminar.

370 Case Study: Global Issues in Social Sciences 3 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.

430 Education Abroad Research V 1-4 May be repeated for credit; cumulative maximum 6 hours. Special assignments and research related to education abroad.

450 Honors Thesis or Project V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 4 hours. Thesis or project directed by student’s major department. S, F grading.

499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

Department of Horticulture and Landscape Architecture

www.hortla.wsu.edu
Johnson Hall 149
509-335-9802


The Department of Horticulture and Landscape Architecture offers programs of study leading to the degrees of Bachelor of Science in Integrated Plant Sciences, Bachelor of Science in Agricultural and Food Systems, Bachelor of Landscape Architecture, Master of Science in Horticulture, Master of Science in Landscape Architecture and Doctor of Philosophy in Horticulture. A minor in Horticulture is also available.

INTEGRATED PLANT SCIENCES AND AGRICULTURAL AND FOOD SYSTEMS

The science of plant life from molecule to market is the focus of the new Integrated Plant Sciences (IPS) Degree program. Delivered collaboratively by departments within the College of Agricultural, Human, and Natural Resource Sciences, the IPS degree provides students with an exciting depth and breadth of knowledge that crosses a variety of plant science disciplines, including crop and soil sciences, horticulture and landscape architecture, entomology, plant pathology, and food science. Students pursuing a Bachelor of Science degree in Integrated Plant Sciences may choose among seven majors highly sought by employers in the state and nationally: Agricultural Biotechnology, Field Crop Management, Fruit and Vegetable Management, Nursery and Greenhouse Management, Landscape Design and Implementation, Turfgrass Management, or Viticulture and Enology. More information regarding IPS is available under the Integrated Plant Sciences catalog section and http://ips.wsu.edu.

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 Technology and Production Management, Agricultural Education, Organic Agriculture Systems, and Agriculture and Food Security. More information regarding AFS is available under the Agricultural and Food Systems catalog section and http://afs.wsu.edu.

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 student club activities.

Agricultural Biotechnology

The Agricultural Biotechnology major is designed for students interested in careers such as laboratory or research technicians in plant biotechnology, breeding, genetics, entomology, plant pathology, molecular biology, or physiology, as well as for students preparing for advanced degrees in these areas. The program emphasizes the development and application of new technology to ensure a safe and abundant food and fiber supply. Students may find employment in industry, government, or university labs.

Fruit and Vegetable Management

The Fruit and Vegetable Management major offers specialization in the science and practice of growing, harvesting, handling, storing, processing, and marketing tree fruits, small fruits, and vegetables. Graduates can look forward to careers as growers and farm managers, production field advisors, sales representatives in the horticultural services industry, managers of produce firms, and brokers and marketers of fruit and vegetable products.

Landscape, Nursery, and Greenhouse Management

The Landscape, Nursery, and Greenhouse Management major is a horticulture-based program, that prepares students for opportunities in plant propagation, the production and marketing of potted crops, bedding plants, trees, shrubs, and cut flowers, and in landscape plant management. This is an exciting major for students interested in owning or managing a nursery or greenhouse, attending graduate school in horticulture, working for university extension offices and research greenhouses, maintaining landscapes and parks, or working as wholesale horticultural-product brokers.

Landscape Design and Implementation

Students interested in careers in designing and building residential, commercial, public, and institutional landscapes, using both plant material and non-living elements such as walls and fountains, should consider the Landscape Design and Implementation major. In addition to the IPS core courses, students will take courses in landscape architecture and horticulture.

Viticulture and Enology

The Viticulture and Enology major was created for students interested in wine-grape growing and winemaking, as well as contributing to critical research and development opportunities in the wine industry. This program offers the technical, scientific, and practical experience needed to gain the essential skills for producing high quality grapes and premium table wines. It prepares students for successful careers in the wine industry in Washington and beyond.

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 undergraduate 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. Students in pre-landscape architecture must apply to be accepted into the upper-division level of the landscape architecture program. 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.

Undergraduate Transfer Students

Students planning to transfer to Washington State University should take courses which meet the university's general education requirements (GERs), and that meet the core requirements for Integrated Plant Sciences, Agricultural and Food Systems, or Landscape Architecture when possible. Students are strongly encouraged to consult with an advisor within the Department of Horticulture and Landscape Architecture for further guidance.

Preparation for Graduate Study

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 horticulture or landscape architecture includes course work outlined under one of the majors with a strong emphasis in plant sciences, chemistry, computer science, mathematics, and statistics.

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 an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

LANDSCAPE ARCHITECTURE
(121 HOURS)

The professional course of study is divided into two segments. These are pre-landscape architecture and the third-fourth year professional landscape architecture program (BLA). Completion of the program 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.

Prelandscape 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 preLA course work will be accepted directly into preLA.

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, L A 101, 102, 260, 262, 263, 365.

Transfer students who have completed the equivalent of the preLA curriculum may apply to the professional program.

First Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 120 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 or 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>L A 101</td>
<td>3</td>
</tr>
<tr>
<td>Math Proficiency [N] (GER)</td>
<td>3</td>
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Second Term

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 101 [I] (GER)</td>
</tr>
<tr>
<td>F A 101 [H] or 202 [H] (GER)</td>
</tr>
<tr>
<td>GenEd 110 or 111 [A] (GER)</td>
</tr>
<tr>
<td>L A 102</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
</tr>
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</table>

Second Year

<table>
<thead>
<tr>
<th>First Term</th>
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</thead>
<tbody>
<tr>
<td>Communication Proficiency [C,W] (GER)</td>
</tr>
<tr>
<td>Hort 231</td>
</tr>
<tr>
<td>L A 260</td>
</tr>
<tr>
<td>L A 262</td>
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<tr>
<td>SoilS 201 [B] (GER)</td>
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</table>

Second Term

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<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
</tr>
<tr>
<td>Hort 232</td>
</tr>
<tr>
<td>Intercultural Studies [I,L,K] (GER)</td>
</tr>
<tr>
<td>L A 263</td>
</tr>
<tr>
<td>L A 365</td>
</tr>
<tr>
<td>Complete Writing Portfolio</td>
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</tbody>
</table>

Third Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecology Elective</td>
<td>3</td>
</tr>
<tr>
<td>Hort 331</td>
<td>3</td>
</tr>
<tr>
<td>L A 362</td>
<td>4</td>
</tr>
<tr>
<td>L A 366</td>
<td>4</td>
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</tbody>
</table>

Second Term

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hort 346</td>
</tr>
<tr>
<td>L A 327</td>
</tr>
<tr>
<td>L A 363</td>
</tr>
<tr>
<td>L A 367</td>
</tr>
</tbody>
</table>

Fourth Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>L A 467</td>
<td>4</td>
</tr>
<tr>
<td>L A 470</td>
<td>4</td>
</tr>
<tr>
<td>L A 475</td>
<td>2</td>
</tr>
</tbody>
</table>

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.

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

Hort

102 Cultivated Plants 3 Production strategies, innovative research, utilization and processing techniques of Washington’s major agronomic and horticultural crops.

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) Rec Biol 120 or Hort 202. Characteristics, identification, nomenclature, ecology, selection, and use of landscape plants, including flowering annuals, deciduous woody plants, and broadleaf evergreens.

232 Landscape Plant Materials II 3 (2-3) Rec Biol 120 or Hort 202. Characteristics, identification, growth, ecology, selection, and use of landscape plants, including conifers, evergreens, interior plants, herbaceous perennials, and flowering woody plants.

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.
### Horticulture and Landscape Architecture

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>310</td>
<td>Pomology</td>
<td>3</td>
<td>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).</td>
</tr>
<tr>
<td>313</td>
<td>Viticulture and Small Fruits</td>
<td>3</td>
<td>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. Cooperative course taught by WSU, open to UI students (PLSC 313).</td>
</tr>
<tr>
<td>320</td>
<td>Olericulture</td>
<td>3</td>
<td>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).</td>
</tr>
<tr>
<td>321</td>
<td>Olericulture Laboratory</td>
<td>1</td>
<td>(0-3) Prereq c/i 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).</td>
</tr>
<tr>
<td>322</td>
<td>Fruit and Vegetable Harvesting and Processing Technology</td>
<td>3</td>
<td>(2-3) Prereq Math GER. Technologies for harvesting, handling, storing, processing, and packaging of value-added fruit and vegetable products. Field trip required.</td>
</tr>
<tr>
<td>326</td>
<td>Vineyard and Winery Equipment Systems</td>
<td>3</td>
<td>(2-3) Prereq Hort 313. Overview of machinery systems used in vineyards and wineries. Field trip required.</td>
</tr>
<tr>
<td>331</td>
<td>Landscape Plant Installation and Management</td>
<td>3</td>
<td>(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.</td>
</tr>
<tr>
<td>332</td>
<td>Interior Plantscaping</td>
<td>3</td>
<td>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. Cooperative course taught by WSU, open to UI students (PLSC 332).</td>
</tr>
<tr>
<td>340</td>
<td>Nursery Management</td>
<td>3</td>
<td>Management of commercial nurseries from plant propagation through sale of plants. Field trip required. Cooperative course taught by UI, open to WSU students (PLSC 340).</td>
</tr>
<tr>
<td>341</td>
<td>Nursery Management Laboratory</td>
<td>1</td>
<td>(0-3) Lab study relevant to Hort 340. Experiments on and demonstrations of different practices within nurseries. Field trip required.</td>
</tr>
<tr>
<td>346</td>
<td>Landscape Irrigation Systems</td>
<td>3</td>
<td>(2-3) System component selection; layout, installation, operation of irrigation systems for turf and landscape plantings; basic system hydraulics; efficient water use.</td>
</tr>
<tr>
<td>357</td>
<td>Greenhouse Management and Crop Production</td>
<td>3</td>
<td>Rec Hort 202. Importance of greenhouse structure and operational systems to quality plant production; production requirements for spring greenhouse crops. Cooperative course taught by WSU, open to UI students (PLSC 357).</td>
</tr>
<tr>
<td>358</td>
<td>Greenhouse Management and Crop Production Lab</td>
<td>1</td>
<td>(0-2) Prereq c/i in Hort 357. Production practices for spring greenhouse crops. Cooperative course taught by WSU, open to UI students (PLSC 358).</td>
</tr>
<tr>
<td>399</td>
<td>Professional Work Experience V</td>
<td>1</td>
<td>(0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq basic horticulture. By interview only. Planned and supervised work experience. S, F grading.</td>
</tr>
<tr>
<td>409</td>
<td>Seminar in Viticulture and Enology</td>
<td>1</td>
<td>Current topics and recent developments in the field of viticulture and enology.</td>
</tr>
<tr>
<td>413</td>
<td>Advanced Viticulture</td>
<td>3</td>
<td>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. Credit not granted for both Hort 413 and 513. Cooperative course taught by WSU, open to UI students (PLSC 413).</td>
</tr>
<tr>
<td>416</td>
<td>Advanced Horticultural Crop Physiology</td>
<td>3</td>
<td>Prereq Hort 202. Rec 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.</td>
</tr>
<tr>
<td>418</td>
<td>[M] Post-harvest Biology and Technology</td>
<td>3</td>
<td>(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).</td>
</tr>
<tr>
<td>421</td>
<td>[M] Fruit Crops Management</td>
<td>3</td>
<td>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.</td>
</tr>
<tr>
<td>435</td>
<td>Chemistry and Biochemistry of Fruit and Wine</td>
<td>3</td>
<td>Prereq Biol 320; MBioS 303; MBioS 305; 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.</td>
</tr>
<tr>
<td>480</td>
<td>Horticultural Genomics</td>
<td>3</td>
<td>Prereq MBioS 301 or Crops 444. Current topics in genetics, genomics and bioinformatics of horticultural crop plants with emphasis on advanced concepts, approaches and techniques.</td>
</tr>
<tr>
<td>488</td>
<td>Anatomy and Physiology of Grapevines and Berries</td>
<td>3</td>
<td>Prereq Biol 318 or 320; Hort 313 rec. Understanding of structural and functional relationships used to sustain vine health and produce high quality grapes.</td>
</tr>
<tr>
<td>490</td>
<td>Potato Science</td>
<td>3</td>
<td>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, open to WSU students (PLSC 490).</td>
</tr>
<tr>
<td>495</td>
<td>Research Experience V</td>
<td>1-4</td>
<td>May be repeated for credit; cumulative maximum 12 hours. Same as Crops 495.</td>
</tr>
<tr>
<td>499</td>
<td>Special Problems V</td>
<td>1</td>
<td>(0-3) to 4 (0-12) May be repeated for credit. S, F grading.</td>
</tr>
<tr>
<td>503</td>
<td>Advanced Topics in Horticulture</td>
<td>1-4</td>
<td>May be repeated for credit; cumulative maximum 8 hours. Prereq Biol 320. Current topics and research techniques in horticulture.</td>
</tr>
<tr>
<td>509</td>
<td>Seminar I</td>
<td>1</td>
<td>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.</td>
</tr>
<tr>
<td>510</td>
<td>Graduate Seminar</td>
<td>1</td>
<td>May be repeated for credit; cumulative maximum 4 hours. Literature reviews and research progress reports.</td>
</tr>
<tr>
<td>513</td>
<td>Advanced Viticulture</td>
<td>3</td>
<td>Prereq Biol 120; Hort 313; Chem 345; SoilS 201; Biol 320. Rec Stats 212 or 412. Graduate-level counterpart of Hort 413; additional requirements. Credit not granted for both Hort 413 and 513. Cooperative course taught by WSU, open to UI students (PLSC 517).</td>
</tr>
<tr>
<td>516</td>
<td>Advanced Horticultural Crop Physiology</td>
<td>3</td>
<td>Graduate-level counterpart of Hort 416; additional requirements. Credit not granted for both Hort 416 and 516.</td>
</tr>
<tr>
<td>518</td>
<td>Post-Harvest Biology and Technology</td>
<td>3</td>
<td>(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).</td>
</tr>
<tr>
<td>521</td>
<td>Fruit Crops Management</td>
<td>3</td>
<td>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.</td>
</tr>
</tbody>
</table>
533 Plant Tissue Culture Techniques 3 (1-5) Laboratory-oriented course involving tissue culture techniques with an emphasis on regenerating herbaceous and woody plant species from organs or tissues. Cooperative course taught by UI, open to WSU students (PLSC 533). Cooperative course taught by UI, open to WSU students (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 445; additional requirements. Credit not granted for both Hort 435 and 535.

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, open to WSU students (PLSC 590).

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

LANDSCAPE ARCHITECTURE

LA 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 skills; introduction to Photoshop, AutoCAD, and Illustrator.

222 Landscape Architecture Field Experience I 1 (0-2) May be repeated for credit; cumulative maximum 2 hours. Prereq sophomore standing. Field study of landscapes, designers and design firms through travel experiences.

260 History of Landscape Architecture 3 (2-2) 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 LA 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 LA 262. Basic design and graphic techniques related to solving of elementary design problems.

327 Theory in Landscape Architecture 3 Prereq LA 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 II 1 (0-2) May be repeated for credit; cumulative maximum 2 hours. Prereq junior standing. Field study of landscapes, designers and design firms through travel experiences.

362 Landscape Architectural Design III 4 (2-6) Prereq LA 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 LA 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 LA 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 LA 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 V 1-2 May be repeated for credit; cumulative maximum 4 hours. Prereq LA 263. Planned professional work experience in design and office practice as approved by faculty; written report and presentation to faculty required. S, F grading.


467 Regional Landscape Inventory and Analysis 4 (2-6) 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 LA 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 LA 363. Program planning for senior project. S, F grading.

477 Landscape Applications of Geographic Information Systems 3 (1-6) Prereq LA 467. GIS-based spatial data development and analysis skills in an applied, real-world context.

480 Professional Practice 2 Prereq LA 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 (LARC 358).

485 [M] Senior Creative Project I 4 (0-8) Prereq LA 423. Individually developed studio or scholarly project conducted with faculty advisor; collection, analysis, and interpretation of project information.

491 Topics in Design 3 Prereq LA 263.

499 Special Problems V 1 (0-3) to 4 (0-12) 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. Cooperative course taught jointly by WSU and UI (LARC 559).

521 Cultural Interpretation of the Regional Landscape 4 (2-4) Prereq graduate standing. Cultural characteristics of the Northern Rocky Mountain regional landscape. Cooperative course taught jointly by WSU and UI (LARC 560).

525 Landscape Modeling 3 (1-6) Prereq LA 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/L/D/LA. Same as Arch 530.

540 Research Methods 3 Same as Arch 540.

560 Interdisciplinary Seminar 3 Prereq graduate standing. Same as Arch 560.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit; cumulative maximum 100 hours. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable Credit. V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

VITICULTURE & ENOLOGY

VE 113 Introduction to Vines and Wines 3 The importance of viticulture (grape growing) and enology (winemaking); wine quality. Cooperative course taught by WSU, open to UI students (FS 113).

313 Viticulture and Small Fruits 3 Prereq biological science, botany, plant science course, or Hort 202. Same as Hort 313. Cooperative course taught by WSU, open to UI students (PLSC 313).

326 Vineyard and Winery Equipment Systems 3 (2-3) Prereq Hort 313. Same as Hort 326.
will produce graduates who:

- Understand the business environment, industry practices, and hospitality

- Develop strong interpersonal, communication, and leadership skills

- Apply quantitative and qualitative hospitality business skills to solve problems

- Identify service gaps and propose solutions for service recovery, while considering multiple stakeholders

- As members of a team, through a group project, evaluate a hotel’s position and present acceptable findings and/or solutions considering the implications for multiple stakeholder.

Global Learning Requirement

Students within the College of Business must complete one of the following Global Learning requirements:

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.

2. Complete a major or minor in a foreign language or Global Studies. 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 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.

5. Complete any two of the following requirements:
   - A brief study abroad program of less than 6 credit hours.
   - An internship approved by the International Business Institute to allow the use of extensive international travel experiences at the collegiate level for up to three credit hours.
   - 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.
   - A major international component such as the Asia Program certificate.

School of Hospitality Business Management

www.business.wsu.edu/Hospitality

Todd Hall Addition 470
509-335-5766

Director and W. Terry Umbreit Distinguished Chair; N. Swanger; Ivar Haglund Distinguished Professor, D. Reynolds; Taco Bell Distinguished Professor, D. Garnsey; Craig Schafer Fellow and Associate Professor, H. J. Kim; Assistant Professor, C. Chi; Culinary Educator, J. Harbour; Executive Chef and Catering Services Manager, J. Callison; Calver Hospitality Relations Manager, J. Mangiantini; Instructors, W. Maynard, T. Leib; Professors Emeriti, L. Kreck, D. Rutherford, D. Smith, W. Terry Umbreit.

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 in various segments within the industry. 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:

- Complete their 1000-hour industry requirement, earning employer evaluation scores of 80% or higher.
- Apply qualitative and quantitative hospitality business skills to solve problems.
- Identify service gaps and propose solutions for service recovery, while considering multiple stakeholders.
- As members of a team, through a group project, evaluate a hotel’s position and present acceptable findings and/or solutions considering the implications for multiple stakeholder.

Global Learning Requirement

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   - 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.
   - A major international component such as the Asia Program certificate.

Schedules of Studies

Students must complete one American Diversity [D] course to meet 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.

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, 202; 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.

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>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EconS 101 [S] or EconS 102 [S] (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>Math 201</td>
<td>3</td>
</tr>
<tr>
<td>Soc or Psych [S,K] (GER) (Soc 101, 102 150 preferred)</td>
<td>3</td>
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Second Term

<table>
<thead>
<tr>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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### WINE BUSINESS MANAGEMENT (121 HOURS)

#### First Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ComSt 102 [C], ComSt 235 [C], or H D 205 [C] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>EconS 101 [S] or EconS 102 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>HBM 182</td>
<td>1</td>
</tr>
<tr>
<td>Math 202 [N] (GER)</td>
<td>3</td>
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</table>

#### Second Year

<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
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</thead>
<tbody>
<tr>
<td>First Term</td>
<td>Acctg 230</td>
</tr>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>3 or 4</td>
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<tr>
<td>HBM 280</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural Studies [L,G,K] (GER)</td>
<td>3</td>
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<tr>
<td>Elective</td>
<td>2 or 3</td>
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<tr>
<td>Second Term</td>
<td>Acctg 231</td>
</tr>
<tr>
<td>B Law 210</td>
<td>3</td>
</tr>
<tr>
<td>MgtOp 215</td>
<td>4</td>
</tr>
<tr>
<td>MIS 250</td>
<td>3</td>
</tr>
<tr>
<td>Pol S Elective</td>
<td>3</td>
</tr>
<tr>
<td>Complete Writing Portfolio</td>
<td>3</td>
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</table>

#### Third Year

<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
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<tbody>
<tr>
<td>First Term</td>
<td>Fin 325</td>
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<tr>
<td>HBM 358</td>
<td>3</td>
</tr>
<tr>
<td>Mktg 360</td>
<td>3</td>
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<tr>
<td>Science [B,P,Q] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Second Term</td>
<td>300-400-level Business Elective</td>
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<tr>
<td>HBM 381 [M]</td>
<td>3</td>
</tr>
<tr>
<td>HBM 491</td>
<td>3</td>
</tr>
<tr>
<td>Physical Sciences [P] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
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</table>

#### Fourth Year

<table>
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<tr>
<th>Term</th>
<th>Courses</th>
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<tr>
<td>First Term</td>
<td>300-400-level Business Elective</td>
</tr>
<tr>
<td>EconS 305, 323, or 423</td>
<td>3</td>
</tr>
<tr>
<td>HBM 320</td>
<td>1</td>
</tr>
<tr>
<td>HBM 494 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Mgmt 450</td>
<td>3</td>
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<tr>
<td>Elective</td>
<td>2</td>
</tr>
<tr>
<td>Second Term</td>
<td>Engl 402 [W] or 403 [W] (GER)</td>
</tr>
<tr>
<td>HBM 495</td>
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</tr>
<tr>
<td>Tier III Course (GER)</td>
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</tr>
<tr>
<td>Elective</td>
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### Minors

#### Minors

**Hospitality Business Management**

To be eligible to certify in the hospitality business management minor, students must be certified in a major and have a cumulative GPA of 2.5. The minor in hospitality business management requires a minimum of 19 hours, 9 of which must be 300-400 level with an overall GPA of at least 2.5 in the required courses. The required courses are Acctg 230, HBM 182 or 320 [Industry Experience which requires students to fulfill a 400 hour work experience/Internship] and 5 College of Business or Hospitality Business Management courses of which at least nine hours must be Hospitality Business Management courses at the 300-400 level. 9 hours must be 300-400 level courses taken in residence at WSU or through WSU-approved education abroad or educational exchange courses and they may not include any 498 or 499 courses. Up to 6 hours may be transferred from another institution. Students must ensure that they meet all course prerequisites before seeking admission to any College of Business course.

### Description of Courses

**HOSPITALITY BUSINESS MANAGEMENT**

#### HBM

131 *Introduction to Hospitality Business Management* 3 Historical development and organizational structure of the hospitality service industries. Cooperative course taught by WSU, open to UI students (CSS 181).

158 *Basic Restaurant Operations and Service* 3 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.

235 *Travel, Society and Business* 3 Underlying principles and practices in domestic tourism. Cooperative course taught by WSU, open to UI students (CSS 236).

258 *Fundamentals of Cooking* 3 (1-6) 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; cumulative maximum 100 hours. S, F grading.

280 *Hospitality Systems* 3 Management functions relating to the planning and operational policies of various hotel departments.

298 *Internship Experience* V 3 (0-9) to 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. Cooperative educational internship with a hospitality business, government, or non-profit organization. S, F grading.

301 *Introduction to Event Planning* 3 Overview of event planning industry, including components, interrelationships, economics, and theory.
320 Industry Experience 1 Final employment preparation to include mock traditional/panel interviews, resume/cover letter critiques, etiquette dinner, and networking. S, F grading.

350 Beverage Management 3 Prereq must be 21 years of age. Beverage operations; detailed study of wines and spirits; consideration of social impacts such as trends in consumption.

358 Foodservice Systems and Control 3 Prereq Acctg 230. Operational control processes, control systems, and cost analysis procedures in food and beverage management.

381 [M] Hospitality Leadership and Organizational Behavior 3 Focusing on interpersonal skills and group dynamics; covers key hospitality leadership and management issues. Cooperative course taught by WSU, open to UI students (CSS 381).

383 Meeting and Convention Management 3 Prereq HBM 301. Theory and practice of meeting/convention/event management, including goals, organization on- and off-site operations, evaluation.

384 (284) Managed Services 3 Focusing on management systems of the segment of the hospitality industry relating to contract and self-operated management companies. Field trip required.

458 Advanced Culinary Management and Catering 3 Prereq HBM 258; HBM 358. Advanced kitchen/dining room management with emphasis on culinary skill development and the planning and administration of catering events.


491 Operational Analysis 3 Prereq Acctg 231; Fin 325; HBM 280; MgtOp 215. Using management tools in analyzing operational effectiveness of hotel and restaurant organizations.

494 [M] Service Operations Management 3 Design and management of service delivery systems through operations management topics from a service perspective.

495 Case Studies and Research 3 Prereq HBM 358; HBM 491; HBM 494. Use of the case method and computerized statistical programs in the analysis of administrative practices of organizations.

497 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours. Topics of special interest within the area of hotel and restaurant administration.

498 Hospitality Business Management Internship V 2 (0-6) to 15 (0-45) 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 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

535 International Tourism Strategy and Planning 3 Tourism components; social, economic, and cultural effects on societies; the management of tourism businesses.

581 Services Management 3 Design and management of service systems in hospitality operations; control of customer interaction, personnel activities and inventory.

591 Service Management Seminar 3 Survey of selected concepts, frameworks, theory, issues and empirical research in service management.

592 Current Issues in Travel and Tourism 3 Current issues, practices, principles and theory, research and methodologies that govern travel and tourism behavior.

597 Special Topics 3 Prereq graduate standing.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Department of Human Development

wwww.human.development.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 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, parent-child relations, youth-at-risk, prevention science, and community collaborative research. This degree prepares graduates for prevention positions, leadership positions in human service professions, entrance to doctoral programs, and research/teaching careers in higher education. More information is available from the graduate school.

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.

HUMAN DEVELOPMENT - FAMILY AND CONSUMER SCIENCES OPTION (127 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.

At least 40 of the total hours required for this bachelor’s degree must be in 300-400-level courses.

First Year

<table>
<thead>
<tr>
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<tr>
<td>Eng 101 [W] (GER)</td>
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<tr>
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<tr>
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<tr>
<td>H D 201</td>
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Second Term

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<tr>
<td>Physical Sciences [P] (GER)</td>
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<td>Psych 105 [S] (GER)</td>
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</table>
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**

**First Term**
- H D 201
- Social Science [S, K] (GER)
- 3
- Science [B, P, Q] (GER)
- 3
- or 4

**Second Term**
- Communication Proficiency [C, W] (GER)
- 3
- GenEd 111 [A] (GER)
- 3
- H D 202
- 3
- H D 204
- 3
- Math Proficiency (GER)
- 3
- or 4

**Second Year**

**First Term**
- Arts & Humanities [H, G] (GER)
- 3
- Biological Sciences [B] (GER)
- 3
- or 4

**Second Term**
- Arts & Humanities [H, G] or Social Sciences [S, K] (GER)
- 3
- H D Elective
- 3
- Minor Elective
- 3

**Third Year**

**First Term**
- H D Elective
- 3
- H D Emphasis 320 [M] or 420 [M]
- 3
- Electives
- 6

**Second Term**
- Tier III Course [T] (GER)
- 3

**Fourth Year**

**First Term**
- H D 410 [M]
- 3
- H D Elective
- 3
- Minor Elective
- 3

**Second Term**
- Tier III Course [T] (GER)
- 3

**First Term**
- H D 410 [M]
- 3
- H D Elective
- 3
- Minor Elective
- 3

**Second Term**
- H D 446 or 498
- 4
- or 6
- H D 497
- 2
- H D Elective
- 3
- Electives
- 6

**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 youngm@mail.wsu.edu.

**General Human Development**

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 and 204 and 12 additional H D elective hours selected from H D 201 or 202 or 203, 300, 301, 302, 305, 340, 341, 350, 360, 385, 403, 406, 408, 412 and 430. Students must achieve a cumulative GPA of 2.5 or better in those 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 certificate 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 - 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**

**First Term**
- Engl 101 [W] (GER)
- 3
- GenEd 110 [A] (GER)
- 3
202 Human Development - Middle Childhood Through Adolescence 3 Prereq H D 101, 201, or 340. 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. May be repeated for credit; cumulative maximum 6 hours. S, F grading.

300 Child Abuse and Neglect 3 Prereq 6 hours of social sciences; sophomore standing. 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; sophomore standing. 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; sophomore standing. Parenting in contemporary society with focus on reciprocity of parent-child relationships and diversity of families.

305 Gerontology 3 Prereq 6 hours of social sciences; sophomore standing. 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, Consumerism, and Problem Solving 3 Prereq 6 hours of social science; sophomore standing. Styles of managing material, human and environmental resources with families; analysis of consumer role; interaction of consumers, government, market; various approaches to problem solving with individuals and families; effects on communities, families, and individuals.

334 [S] Principles of Community Development 3 Prereq social science course, sophomore standing. Factors influencing how communities grow and decline and the ways in which social interventions influence these outcomes.

340 Development in Context 3 Prereq 6 hours in social sciences; sophomore standing. 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; sophomore standing. 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 201 or 340; H D 341 or c/l; 3 additional hours of social sciences; sophomore standing. Planning and implementation of developmentally appropriate curriculum for use in programs serving young children.

350 [S, D] Diversity in Contemporary Families 3 Prereq 6 hours of social sciences; sophomore standing. 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; sophomore standing. 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; sophomore standing. In-depth study of human service practice, theoretical perspectives and strategies for delivery of appropriate services to diverse clientele.

403 [T,D] Families in Poverty 3 Prereq 6 hours of social sciences; junior standing; issues related to work and family; workplace environments; fostering effective policy responses to family needs; role of work-family coordination.

407 Student Teaching for Family and Consumer Sciences V 4-16 Prereq T & L 415 or c/l; junior standing; 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 at an approved site. Supervised teaching in public schools, including seminars reflecting on effective teaching. S, F grading.

408 Advanced Adolescent Development 3 Prereq 9 hours of social sciences; junior standing. In-depth examination of theories and research; developmental issues and prevention and intervention programs for school-aged child and adolescent.

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 9 hours of social sciences; junior standing. Understanding growth and change in adulthood with application of effective learning and teaching practices with adult populations.

420 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.

430 Professional Skills 3 Prereq 9 hours of social sciences; 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 6 (0-18) May be repeated for credit; cumulative maximum 12 hours. Prereq open only to H D majors or H D certificate students; H D 201 or 340; H D 341; HD 342; junior standing; receive fingerprinting clearance from Washington State Patrol (Pullman campus) or FBI (WSU Online); must have 2.5 gpa in H D coursework; placement by interview only at an approved site. Supervised teaching; emphasis on skill building in working with diverse groups of children and building partnerships with families.

449 Seminar in Early Childhood Education 3 Prereq 9 hours of social sciences; H D 201 or 340; 3 additional hours of H D; junior standing; Rec H D 341 and 342. Identification and examination of current issues and trends in early childhood education with emphasis on child, family, and community concerns.

464 Administration of Early Childhood Programs 3 Prereq 9 hours of social sciences; H D 201 or 340; junior standing. 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; sophomore standing. 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; sophomore standing. 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 or 340; 6 additional hours in H D; junior standing. 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 placement by interview only. 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 May be repeated for credit; cumulative maximum 15 hours. Prereq 6 hours of social sciences; sophomore standing. 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; sophomore standing. Assessment and evaluation of families and children.

490 Professional Preparation
2 Prereq 12 hours in H D; open only to H D Majors or H D Certificate students who have earned at least 12 credits toward an H D certificate; junior standing. Educational knowledge and personal skills/abilities matched to careers; expanded knowledge of human development professions; professional self-presentation; professional/ethical conduct.

495 Instructional Practicum
V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq placement by interview only. 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; open only to H D Majors or H D Certificate students who have earned at least 12 credits toward an H D certificate; junior standing. Educational knowledge and personal skills/abilities matched to careers; expanded knowledge of human development professions; professional self-presentation; professional/ethical conduct.

498 Field Placement
V 1 (0-3) to 8 (0-24) May be repeated for credit; cumulative maximum 8 hours. Prereq H D 385 (Vancouver students only) or H D 497; open only to H D majors, or H D Certificate students who have earned at least 12 credits toward an H D certificate; junior standing; receive fingerprinting clearance from Washington State Patrol (Pullman campus) or FBI (WSU Online); must have 2.5 GPA in HD coursework. Placement by interview only at an approved site. Self-initiated, supervised work experience with appropriate private organizations, businesses, or government agencies; interaction with professionals in related fields.

499 Special Problems
V 1 (0-3) to 4 (0-12) May be repeated for credit. Prereq placement 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.

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.

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).

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. Seminar on family relationships issues and trends.

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 Assessment and Evaluation in Early Childhood Programs
3 Prereq H D 560. Investigating: Best classroom practices for creating early learning environments, use of observation and documentation to evaluate and improve quality.

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.

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
V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination
V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Humanities
libarts.wsu.edu/english
Avery 202
509-335-2881

Academic Coordinator, L. McCormick.

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 literature elective requirement in their option.

Using Humanities 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**

**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.

120 [G] Traditional Chinese Culture 3 Same as Chin 120.

130 [H] Introduction to Foreign Literature 3 Same as For L 130.


301 [G] Diversity Lecture Series 1 Guest lecturers in the humanities explore themes in cultural diversity.

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, music, art, 1700 to World War I; revolutionary changes which led to the 20th century.

304 [H] Humanities in the Modern World 3 Literature, philosophy, art, architecture, film, music since World War I; major works reflecting influential movements and concerns of the modern world.

320 [G,M] Issues in East Asian Ethics 3 Same as Japn 320.

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 six 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 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

**Integrated Plant Sciences**

ips.wsu.edu

Hulbert Hall 423
503-335-8406


The science of plant life from molecule to market is the focus of the new Integrated Plant Sciences (IPS) Degree program. The degree is delivered collaboratively by departments within the College of Agricultural, Human, and Natural Resource Sciences.

The IPS degree provides students with an exciting depth and breadth of knowledge that crosses a variety of plant science disciplines, including crop and soil sciences, horticulture and landscape architecture, entomology, plant pathology, and food science. Students pursuing a Bachelor of Science degree in Integrated Plant Sciences may choose among seven majors, often in collaboration with other students and faculty, to develop their own unique track.

In addition to WSU’s Six Learning Goals of the University, IPS graduates also will be able to:

- Understand and put into practice the scientific basis and interdisciplinary nature of plant production and utilization systems
- Understand and put into practice the physiological and biochemical processes that occur during growth, development, maturation, and harvest of crop plants
- Use the skills, facts, concepts, principles, and research methods from plant and other sciences to participate actively in a wide variety of environmental, scientific and agricultural activities, including research, outreach, education and management
- Understand and appreciate the importance of horticultural and agronomic crop plants to global society and use this knowledge to contribute to the welfare of global society
- Clearly and compellingly communicate solutions to local, regional, national, and global problems in writing or orally using appropriate traditional and emerging technological media
- Understand and appreciate the wide array of professional opportunities in plant sciences.

The hands-on possibilities within the IPS degree are numerous. Students are required to participate in undergraduate research projects, work as part-time employees with research and extension personnel, and/or participate in professional internships to put their classroom training to work. Student clubs also provide a variety of ways to interact with peers, faculty, and staff within the college, yet another way to enrich the educational experience.

Scholarships for IPS majors are available on a competitive basis and are awarded based on ability, need, and interest in a career path in plant sciences. In order to certify in an IPS major, a student must have a minimum of 24 credits with a minimum cumulative GPA of 2.0. For complete information about all majors within the IPS degree programs, please see the IPS webpage at: http://ips.wsu.edu.

**Transfer Students**

Students planning to transfer into the IPS program should take courses that meet the university’s general education requirements (GERs), and that also meet the IPS core requirements when possible. Students are strongly encouraged to consult with an advisor within the IPS program for further guidance.

**Courses**

Refer to the Department of Crop and Soil Sciences and the Department of Horticulture and Landscape Architecture for course descriptions.

**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.

**AGRICULTURAL BIOTECHNOLOGY (120 HOURS)**

The Agricultural Biotechnology major is a designed for students interested in careers as laboratory or research technicians in plant biotechnology, breeding, genetics, entomology, plant pathology, molecular biology, or physiology, as well as for students preparing for advanced degrees in these areas. The program emphasizes the development and application of new technology to ensure a safe and abundant food and fiber supply. Students may find employment in industry, government, or university labs.
FIELD CROP MANAGEMENT (120 HOURS)

The Field Crop Management major is ideal for students interested in agronomy, crop production, and plant, soil, and pest management. Crop scientists (or agronomists) are involved in improving food, feed, and fiber production. Graduates qualify for careers in agribusiness, corporate and technical farm management, professional consulting, research, and sales positions.

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<td>Biol 106 [B] (GER)</td>
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<td>First Term</td>
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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>Entom 340</td>
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<td>H D 205 [C] or ComSt 102 [C] (GER)</td>
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<tr>
<td>Hort 416 or CropS 411 [M]</td>
<td>3</td>
</tr>
<tr>
<td>MBioS 401</td>
<td>3</td>
</tr>
<tr>
<td>MBioS 404</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>4</td>
</tr>
</tbody>
</table>

| 1 One of the Arts & Humanities or Social Sciences courses [H,G,S,K], or the Tier III [T] course should be double-designated as a Diversity [D] course. |
| 2 IPM 452 can be taken as an alternative to IPM 201. |

| 1 One of the Arts & Humanities or Social Sciences courses [H,G,S,K], or the Tier III [T] course should be double-designated as a Diversity [D] course. |
| 2 Entom 343 can be taken as an alternative to Entom 452. |

FRUIT AND VEGETABLE MANAGEMENT (120 HOURS)

The Fruit and Vegetable Management major offers specialization in the science and practice of growing, harvesting, handling, storing, processing, and marketing tree fruits, small fruits, and vegetables. Students will learn the most efficient and sustainable management practices involving state-of-the-art production systems for the diverse fruit and vegetable crops produced in the Pacific Northwest and beyond. Graduates can look forward to careers as growers and farm managers, production field advisors, sales representatives in the horticultural services industry, managers of produce firms, and brokers and marketers of fruit and vegetable products.

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Term</td>
<td></td>
</tr>
<tr>
<td>Biol 106 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [P] or 105 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Hort 102</td>
<td>3</td>
</tr>
<tr>
<td>Math 140 [N] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Second Year</td>
<td></td>
</tr>
<tr>
<td>First Term</td>
<td></td>
</tr>
<tr>
<td>Anth 203 [K] or Anth 309 [K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Biol 120 [B] or Biol 107 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Hort 102</td>
<td>3</td>
</tr>
<tr>
<td>Stat 212 [N], Math 140 [N], Math 171 [N] or Math 202 [N] (GER)</td>
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</table>

<table>
<thead>
<tr>
<th>Second Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Advisor Specified Course</td>
<td>4</td>
</tr>
<tr>
<td>H D 205 [C] or ComSt 102 [C] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Hort 202</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>Complete Writing Portfolio</td>
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<table>
<thead>
<tr>
<th>Third Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Term</td>
<td></td>
</tr>
<tr>
<td>Advisor Specified Course (Rec [M])</td>
<td>4</td>
</tr>
<tr>
<td>CropS 305</td>
<td>3</td>
</tr>
<tr>
<td>EconS 350 or EconS 352</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>7</td>
</tr>
<tr>
<td>Second Term</td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>CropS 411 [M]</td>
<td>3</td>
</tr>
<tr>
<td>CropS 495, 497, 498, or 499</td>
<td>3</td>
</tr>
<tr>
<td>IPM 452</td>
<td>2</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td>Complete Writing Portfolio</td>
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</table>

<table>
<thead>
<tr>
<th>Fourth Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Term</td>
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</tr>
<tr>
<td>Advisor Specified Course</td>
<td>4</td>
</tr>
<tr>
<td>CropS 403</td>
<td>3</td>
</tr>
<tr>
<td>PI P 429</td>
<td>3</td>
</tr>
<tr>
<td>Tier III Course [T] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Second Term</td>
<td></td>
</tr>
<tr>
<td>CropS 412</td>
<td>1</td>
</tr>
<tr>
<td>Soils 441</td>
<td>3</td>
</tr>
<tr>
<td>Stat 212 [N] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>7</td>
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</table>

<table>
<thead>
<tr>
<th>Second 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>Entom 340</td>
<td>3</td>
</tr>
<tr>
<td>Environmental Hort. Elective</td>
<td>3</td>
</tr>
<tr>
<td>Hort 416 or CropS 411 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Tier III [T] (GER) (Biol 408 Rec)</td>
<td>3</td>
</tr>
<tr>
<td>Third Term</td>
<td>Hours</td>
</tr>
<tr>
<td>Hort 399</td>
<td>3</td>
</tr>
</tbody>
</table>
### Fourth Year

#### First Term  
- **Hours**
  - Hort 320 3
  - Hort 321 1
  - Hort 418 [M] 3
  - PI P 300 or PI P 429 2
  - Sustainability Elective 3
  - Open Elective 3

#### Second Term  
- **Hours**
  - 400-500-level Seminar in CAHNRS 1
  - Advanced Fruit or Vegetable Elective 3
  - Hort 425 [M] 3
  - Pest Management Elective 3
  - SoilS 441 3

---

1 One of the Arts & Humanities or Social Sciences courses [H,G,S,K], or the Tier III [T] course should be double-designated as a Diversity [D] course.

2 Sustainability Elective (at least 2 courses): ES/RP 375; SoilS 101; SoilS 150 [Q]; SoilS 301 [M]; or SoilS 345.

3 IPM 452 can be taken as an alternative to IPM 201.

4 Pest Management Elective (at least 2 courses): CropS 305; Entom 375; IPM 462 [M]; or IPM 452.

5 Entom 343 can be taken as an alternative to Entom 340.

6 Advanced Fruit or Vegetable Elective (at least 1 course): Hort 413; Hort 421 [M]; or Hort 490.

### LANDSCAPE DESIGN AND IMPLEMENTATION (120 HOURS)  
Students interested in careers in designing and building residential, commercial, public, and institutional landscapes, using both plant material and non-living elements such as walls and fountains, should consider the Landscape Design and Implementation major. In addition to the IPS core courses, students will take courses in landscape architecture and horticulture. Through hands-on experience in course activities and participation in a professional practicum, students will learn to design, install, and maintain aesthetic outdoor environments that enrich people’s lives.

#### First Year  

<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Term</strong></td>
<td><strong>Hours</strong></td>
</tr>
<tr>
<td>Hort 320</td>
<td>3</td>
</tr>
<tr>
<td>Hort 321</td>
<td>1</td>
</tr>
<tr>
<td>Hort 418 [M]</td>
<td>3</td>
</tr>
<tr>
<td>PI P 300 or PI P 429</td>
<td>2 or 4</td>
</tr>
<tr>
<td>Sustainability Elective 3</td>
<td></td>
</tr>
<tr>
<td>Open Elective</td>
<td>3</td>
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</table>

#### Second Year  

<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Term</strong></td>
<td><strong>Hours</strong></td>
</tr>
<tr>
<td>Hort 320</td>
<td>3</td>
</tr>
<tr>
<td>Hort 321</td>
<td>3</td>
</tr>
<tr>
<td>Hort 418 [M]</td>
<td>1</td>
</tr>
<tr>
<td>PI P 300</td>
<td>3</td>
</tr>
<tr>
<td>SoilS 201 [B] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

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1 One of the Arts & Humanities or Social Sciences courses [H,G,S,K], or the Tier III [T] course should be double-designated as a Diversity [D] course.

2 Entom 340 can be taken as an alternative to Entom 343.

3 Entom 340 can be taken as an alternative to Entom 340.

4 Advanced Fruit or Vegetable Elective (at least 1 course): Hort 413; Hort 421 [M]; or Hort 490.

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### Third Year  

<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Term</strong></td>
<td><strong>Hours</strong></td>
</tr>
<tr>
<td>CropS 301 [M]</td>
<td>3</td>
</tr>
<tr>
<td>EconS 101 [S] or EconS 102 [S] (GER)</td>
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</tr>
<tr>
<td>Entom 343</td>
<td>3</td>
</tr>
<tr>
<td>LDI Elective 1</td>
<td>3</td>
</tr>
<tr>
<td>LDI Elective 3 [M]</td>
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</tbody>
</table>

#### Second Term  

<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Hort 331</td>
<td>3</td>
</tr>
<tr>
<td>IPM 452 [M]</td>
<td>2</td>
</tr>
<tr>
<td>L A 365</td>
<td>4</td>
</tr>
<tr>
<td>LDI Electives 3</td>
<td>2</td>
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</table>

#### Fourth Year  

<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hort 231</td>
<td>3</td>
</tr>
<tr>
<td>Hort 232</td>
<td>3</td>
</tr>
<tr>
<td>Hort 416</td>
<td>3</td>
</tr>
<tr>
<td>L A 366</td>
<td>3</td>
</tr>
<tr>
<td>L A 399</td>
<td>2</td>
</tr>
<tr>
<td>PI P 300</td>
<td>2</td>
</tr>
<tr>
<td>Tier III Course [T] (GER) 1</td>
<td>3</td>
</tr>
</tbody>
</table>

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1 One of the Arts & Humanities or Social Sciences courses [H,G,S,K], or the Tier III [T] course should be double-designated as a Diversity [D] course.

2 Entom 340 can be taken as an alternative to Entom 343.

3 Entom 340 can be taken as an alternative to Entom 340.

4 Advanced Fruit or Vegetable Elective (at least 1 course): Hort 413; Hort 421 [M]; or Hort 490.

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### LANDSCAPE, NURSERY, AND GREENHOUSE MANAGEMENT (120 HOURS)  
The Landscape, Nursery, and Greenhouse Management major is a horticulture-based program that prepares students for opportunities in landscape plant management and in the propagation, production, marketing, and use of potted crops, bedding plants, trees, shrubs, and cut flowers. This is an exciting major for students interested in owning or managing a nursery or greenhouse; attending graduate school in horticulture; working for university extension offices and research greenhouses, maintaining public gardens, arboretums, landscapes, and parks; or working as wholesale horticultural-product brokers. Students in this major are encouraged to gain hands-on experience and earn scholarships through participation in the Horticulture Club.

#### First Year  

<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 106 [B], Biol 107 [B], 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] or 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Hort 102</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>2</td>
</tr>
</tbody>
</table>

#### Second Year  

<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 106 [B], Biol 107 [B], or Biol 120 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 101 [P] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Hort 231</td>
<td>3</td>
</tr>
<tr>
<td>Hort 232</td>
<td>3</td>
</tr>
<tr>
<td>L A 366</td>
<td>3</td>
</tr>
<tr>
<td>L A 399</td>
<td>2</td>
</tr>
<tr>
<td>PI P 300</td>
<td>2</td>
</tr>
<tr>
<td>Tier III Course [T] (GER) 1</td>
<td>3</td>
</tr>
</tbody>
</table>

---

1 One of the Arts & Humanities or Social Sciences courses [H,G,S,K], or the Tier III [T] course should be double-designated as a Diversity [D] course.

2 Entom 340 can be taken as an alternative to Entom 343.

3 Entom 340 can be taken as an alternative to Entom 340.

4 Advanced Fruit or Vegetable Elective (at least 1 course): Hort 413; Hort 421 [M]; or Hort 490.

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### Third Year  

<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anth 203 [K] or Anth 309 [K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Hort 346</td>
<td>1</td>
</tr>
<tr>
<td>L A 366</td>
<td>4</td>
</tr>
<tr>
<td>L A 399</td>
<td>2</td>
</tr>
<tr>
<td>PI P 300</td>
<td>2</td>
</tr>
<tr>
<td>Tier III Course [T] (GER) 1</td>
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#### Second Term  

<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
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</thead>
<tbody>
<tr>
<td>400-500-level Seminar in CAHNRS 1</td>
<td>1</td>
</tr>
<tr>
<td>Hort 416</td>
<td>3</td>
</tr>
<tr>
<td>L A 367</td>
<td>3</td>
</tr>
<tr>
<td>L A 399</td>
<td>1</td>
</tr>
<tr>
<td>LDI Electives 3</td>
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#### Fourth Year  

<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anth 203 [K] or Anth 309 [K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Hort 346</td>
<td>1</td>
</tr>
<tr>
<td>Hort 231</td>
<td>3</td>
</tr>
<tr>
<td>Hort 232</td>
<td>3</td>
</tr>
<tr>
<td>Hort 416</td>
<td>3</td>
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<tr>
<td>Hort 346</td>
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<tr>
<td>Hort 347</td>
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</tr>
<tr>
<td>Hort 357</td>
<td>3</td>
</tr>
<tr>
<td>Hort 425 [M]</td>
<td></td>
</tr>
</tbody>
</table>

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1 One of the Arts & Humanities or Social Sciences courses [H,G,S,K], or the Tier III [T] course should be double-designated as a Diversity [D] course.

2 Entom 340 can be taken as an alternative to Entom 343.

3 Entom 340 can be taken as an alternative to Entom 340.

4 Advanced Fruit or Vegetable Elective (at least 1 course): Hort 413; Hort 421 [M]; or Hort 490.

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### Integrated Plant Sciences (196)
**TURFGRASS MANAGEMENT (120 HOURS)**

The Turfgrass Management major is geared toward students interested in pursing careers as golf course managers, athletic field managers, or personnel managers in those venues. Students will take courses in turf management, turf production, plant pathology, entomology, soil fertility, and plant breeding to learn how to maintain healthy turfgrass systems. Additionally, students gain hands-on experience at the Palouse Ridge Golf Course, a new 18-hole championship golfing facility at the Pullman campus.

**First Year**

**First Term**
- Anh 203 [K] or Anh 309 [K] (GER) 3
- Chem 101 [P] (GER) 4
- CropS 104 1
- Engl 101 [W] (GER) 3
- Hort 102 3

**Second Term**
- Biol 106 [B] (GER) 4
- Chem 102 [P] (GER) 4
- GenEd 110 [A] or 111 [A] (GER) 3
- Hort 204 2

**Second Year**

**First Term**
- Biol 120 [B] or Biol 107 [B] (GER) 4
- CropS 317 1
- GenEd 110 [A] or 111 [A] (GER) 3
- H D 205 [C] or ComSt 102 [C] (GER) 3 or 4
- SoilS 201 [B] 3

**Second Term**
- AgTM 412 3
- Arts & Humanities [H,G] (GER) 3
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- CropS 318 1
- EconS 102 [S] (GER) 3
- IPM 452 2
- Complete Writing Portfolio

**Third Year**

**First Term**
- AgTM 315 3
- CropS 301 [M] 3
- CropS 305 3
- Electives 3
- Stat 212 [N] (GER) 4

**Second Term**
- CropS 302, Hort 232, or Hort 331 3
- Entom 340 3
- SoilS 441 3
- Electives 7

**Fourth Year**

**First Term**
- AgTM 314 or Hort 346 3
- CropS 495, CropS 497, CropS 498, or CropS 499 3
- PI P 429 3
- SoilS 442 3
- Tier III Course [T] (GER) 1 3

**Second Term**
- Acctg 230, EconS 350 or 352, or MgtOp 301 3
- CropS 401 3
- CropS 411 [M] 3
- CropS 412 1
- CropS 444 2
- Elective 3

---

1. One of the Arts & Humanities or Social Sciences courses [H,G,S,K], or the Tier III [T] course should be double-designated as a Diversity [D] course.


3. IPM 201 can be taken as an alternative to IPM 452.

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**VITICULTURE AND ENOLOGY (122 HOURS)**

The Viticulture and Enology major was created for students interested in wine-grape growing and winemaking, as well as contributing to critical research and development opportunities in the wine industry. This program offers the technical, scientific, and practical experience needed to gain the essential skills for producing high quality grapes and premium table wines. It prepares students for successful careers in the wine industry in Washington and beyond.

**First Year**

**First Term**
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] or 111 [A] (GER) 3
- Hort 102 3
- Math 140 [N] (GER) 4

**Second Term**
- Biol 106 [B] (GER) 4
- Chem 106 [P] (GER) 4
- H D 205 [C] or ComSt 102 [C] (GER) 3 or 4
- Hort 202 4

---

1. One of the Arts & Humanities or Social Sciences courses [H,G,S,K], or the Tier III [T] course should be double-designated as a Diversity [D] course.

2. IPM 201 can be taken as an alternative to IPM 452.

3. Entom 343 can be taken as an alternative to Entom 340.

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**Description of Courses**

Refer to the Department of Crop and Soils Sciences and the Department of Horticulture and Landscape Architecture for course descriptions.
Interdisciplinary

Description of Courses

INTERDISCIPLINARY

Univ

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.

580 Leadership Development V 1-3 Prereq permission of instructor. Meetings and workshops designed to develop professional and leadership skills for doctoral students.

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 Professorate 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.

698 Continuous Enrollment Status 0 This course (no credit earned) satisfies continuous enrollment status for graduate students who are not otherwise enrolled.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. For Interdisciplinary PhD only. S, F grading.

Overview

The Interdisciplinary Design Institute, located on the Washington State University Spokane campus, is committed to leadership in developing the highest level of disciplinary and interdisciplinary instruction, scholarship, and public service. The Institute’s philosophy recognizes these areas of emphasis as interdependent and reinforcing and seeks to foster creative interplay among them.

Undergraduate Students

Undergraduate students from interior design spend time at the Interdisciplinary Design Institute in the third and fourth years of their programs learning together on design issues using both disciplinary and interdisciplinary approaches. Undergraduate students in architecture and landscape architecture will complete their studies on the Pullman campus.

Graduate Students

At the Interdisciplinary Design Institute, students may pursue studies towards graduate degrees in Architecture (M. Arch), Interior Design (M.A.), Landscape Architecture (M.S.) and the Doctor of Design (D. Des).

Graduate students explore advanced design theories, problem-solving techniques, methodologies, and individual research initiatives while pursuing their degrees. Through opportunities and experiences at the Institute graduate students acquire the skills and knowledge needed to participate effectively as members of interdisciplinary design and research teams, and to advance the body of knowledge in their disciplines.

Doctor of Design

The Doctor of Design (D. Des) is intended to advance both the art and science of design within the philosophical and pedagogical framework of interdisciplinary inquiry, critical synthesis, and problem solving that bridges education, research, and practice. As a terminal doctoral degree, the D. Des is intended for persons who are well versed and professionally skilled in the design profession and who seek to make substantive, innovative, and original scholarly contributions to their fields. The D. Des is the only one of its kind in the State of Washington, as well as the western United States and Canada.

Courses

The Interdisciplinary Design Institute partners with the School of Architecture and Construction Management, the Department of Interior Design, and the Department of Horticulture and Landscape Architecture to offer additional courses on the Spokane campus.

Description of Courses

DESIGN

Design

396 Introduction to Digital Modeling 3 Prereq certified design major. Computer-aided drafting (CAD) fundamentals and basic theoretical concepts related to its use in professional design practice.

397 3-D Digital Modeling and Project Information Management I 3 Prereq 1 D 297. 3-D digital modeling as a medium to support design visualization, investigation and communication including project information management; emphasis on Revit suite software.

497 3-D Digital Modeling and Project Information Management II 3 Prereq Design 397. Integration of advanced building information modeling (BIM) techniques utilizing complex applications within the Revit software suite.

498 Advanced Digital Modeling 3 Prereq Design 497. Broad integration of Non-Uniform Rational B-spline (NURBS) modeling techniques including practical fundamentals and theoretical concepts of modeling, rendering and animation.

550 Applications: Using Research in the Inquiry Process 3 Prereq Doctoral standing; previous research methods course. Application of scientific research in the advanced design process.

561 Seminar in Design Thinking 3 Prereq doctoral standing. Understanding “design thinking” or “design knowing” and translating research and theory into practice.

562 Area Readings 3 Prereq Doctoral standing. Forum for the advancement of understanding and discussion of readings related to interdisciplinary design.

563 Directed Readings 3 Prereq Design 562. Advanced critical and comprehensive reviews of literature pertinent to student’s focus area; development of specialization and expertise in identified area.


565 Dissertation Proposal Planning 2 Prereq doctoral standing and c// in Design 564. Write and present independent research proposal based on work in Design 564 to prospective doctoral committee members. S, F grading.

570 Research Practicum 3 Prereq Doctoral standing; Design 564; Design 565. Interdisciplinary research in design; focus on development and application of individual research.

590 Teaching Practicum V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq doctoral standing. Supervised teaching experience integrating application of design knowledge and approaches. S, F grading.

598 Topics in Design V 1-3 May be repeated for credit; cumulative maximum 9 hours. Prereq doctoral student. Topical issues in design responding to the shifting demands and needs of the design professions.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Interdisciplinary Design Institute, WSU Spokane

http://spokane.wsu.edu/academics/design
WSU Spokane
509-358-7920
design@wsu.edu

Interdisciplinary Design Institute: Professors, N. Blossom, D. Wang; Associate Professors, J. Abell, K. Brooks, M. Cohen, J. McCoy, M. Melcher, R. Scarfe; Assistant Professor, J. Theodore; Assistant Clinical Professor T. Beyreuther; Professor Emeritus, J. A. Thompson.
**Department of Interior Design**

http://id.wsu.edu/

Daggy 330  
509-335-4118

Chair and Clinical Associate Professor, L. Nelson Johnson; Professor, N. Blossom; Associate Professors, R. Krikac, J. McCoy, M. Melcher; Assistant Professors, K. Ryan, J. Theodorson.

**THE CURRICULUM**

Accredited by the Council for Interior Design Accreditation (CIDA), the Bachelor of Arts in Interior Design is a professional degree program that provides the common body of knowledge related to interior design as recognized by CIDA. The interior design program is based on a concern for human beings and the creation of interior settings that support human activities and values. The curriculum is structured to create unique learning experiences each semester. Studios focus on a multitude of design theories rooted in a variety of relevant disciplines. Lecture course content is integrated into the studio experience to reinforce specified skills and knowledge. With increasing challenge and complexity, multidisciplinary exposure and experiences continue throughout the curriculum to inform design solutions as well as prepare students to work with a myriad of professionals upon graduation.

**PROFESSIONAL/GLOBAL EXPERIENCE**

The WSU Interior Design program values experiential learning as an important component of a student’s education. Students participate in multidisciplinary charettes and Design Research Focus Week, which brings scholars and practitioners from across the globe representing various disciplines to the Spokane campus. During the fall semester of the senior year students have an opportunity to study abroad, complete an internship, or work with faculty on actual design or research projects. The first two options send students off campus for the entire semester. Supportive course work is offered online to fulfill the semester’s credit load. Students remain on campus for the third option, but often travel around the region to meet with clients.

In the fall semester of the senior year students will participate in a professional and/or global experience, choosing one of the following options:

Option 1: Internship—students are required to complete a 5-credit internship and encouraged to seek opportunities beyond the inland northwest. Option 2: Study Abroad—students can choose to participate in the department’s study abroad program providing them an opportunity to experience design within the context of another culture. Remaining credits for Option 1 and 2 will be offered through online courses. Option 3: Community Studio—students can work with faculty on actual community-based projects.

**STUDENT OUTCOMES**

A graduate of the Interior Design program is a creative thinker and problem solver. An education in interior design develops intellectual curiosity, which supports continued professional development throughout life. Students develop skills that allow them to analyze information, evaluate issues, and set priorities while generating creative design solutions for projects of a complex scale. As graduates of WSU’s Interior Design program, 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.

**STUDENT PERFORMANCE AND EXPECTATIONS**

Students must earn a C or better in all interior design courses required for the degree of Bachelor of Arts in Interior Design. At the end of the sophomore year, students’ GPAs are used to determine certification into the upper division. Overall GPA and major specific GPAs (26 credits; 23 for transfer students) are considered. While students must have a minimum of a 2.5, the process is competitive due to limited space in upper division courses. The program caps acceptance at 30 students.

All students are required to have a personal laptop computer prior to enrollment in upper-division studio courses. See http://id.wsu.edu/ for computer specification requirements. Students complete their third and fourth years at WSU Spokane at the Interdisciplinary Design Institute and must present at senior portfolio review to graduate.

**GRADUATE STUDIES**

Qualified students may choose to apply to the articulated B.A./M.A. degree program in the senior year that leads to a master’s degree completed with one year of graduate study. The Master of Arts program offers a two-year research oriented track for interior designers already holding a degree in interior design or a related discipline. The M.A. program also offers one of the few three-year tracks available nationwide—catering to individuals possessing a bachelor’s degree in something other than design. The Master of Arts program combines studio design experiences with qualitative and quantitative research to explore human behavior vis-a-vis interior environments, examine design theories, and experiment in design technology.

**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.

**INTERIOR DESIGN (121 HOURS)**

The interior design program offers a balanced exposure to art, architecture, and humanities. All studio projects are informed by relevant theoretical frameworks in order to advance design solutions. Upper-division coursework is taught at WSU Spokane, where students are exposed to interdisciplinary experiences. Students are required to complete one of three options during the fall of the senior year: internship, study abroad, or community studio.

Students are required to earn a C or better in all required interior design courses required for the degree of Bachelor of Arts in Interior Design. All students must present a senior portfolio review to graduate.

**Certification Requirements**

Students wishing to certify into the Bachelor of Arts in Interior Design program must complete a minimum of 45 semester hours. Of those 45 semester hours, 29 semester hours (26 for transfer students) are major specific courses (ID 101, 102, 197, 201, 202, 203, 205, 215, 297, or transfer equivalents as approved by the department) in which the student must receive a C or better. Upon completion of ID 203, students’ GPAs are used to determine certification into the major in Interior Design. The student’s overall WSU GPA and major specific GPA from the courses listed above are considered. While students must have a minimum of a 2.5 GPA to apply for certification, the process is competitive due to limited space in upper division courses. The program caps acceptance at 30 students.

**First Year**

<table>
<thead>
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<td>I D 197</td>
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**Second Term**

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**Second Term**

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**Third Year**

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**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**

**First Term**

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**Junior Year in Spokane**

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**Description of Courses**

**INTERIOR DESIGN**

1D

101 Design Issues 3 Sensory awareness as a design determinant; introduction to basic design elements in problem identification and solving processes.

102 Interior Design Studio I 3 (0-6) Prereq I D 101. Interior design problem-solving grounded in aesthetic theories. Credit not granted for both I D 102 and I D 200.

103 Transfer Studio 6 (3-6) An intensive studio introducing basic elements and principles of design; basic technical skills (drafting, sketching, rendering, model building).

197 Design Communication I 3 (2-2) Beginning design communication skills, including manual and digital methods.

201 Interior Design Studio II 4 (1-9) Prereq I D 101, 102, 197 or c// in I D 103. Interior design problem-solving grounded in theories of human behavior.

202 [H] The Built Environment 3 Same as Arch 202.


205 Visual Communication 3 (2-2) Course focuses on the various methods in which the interior designer may choose to visually communicate design concepts.

215 Materials and Components of Interior Design 3 Characteristics and properties of structural and non-structural interior materials.

250 [H] History of Interiors 3 A survey of interior environments, spatial distributions, furnishings, and related design elements from ancient Egypt to the 18th century.

277 Interior Design Field Trip 1 May be repeated for credit; cumulative maximum 2 hours. Prereq freshman standing. Selected issues in the field of interior design in connection with an organized field trip.

278 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours. S, F grading.

279 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

297 Design Communication II 3 (2-2) Prereq I D 197. Manual and digital design communication skills for 2D/3D design problem solving; integration of current technology and software applications.

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.


325 Interior Building Systems 3 Prereq I D 203. Analysis, planning, and application of interior lighting; introduction to HVAC and plumbing systems.

326 Codes for Interior Designers 3 Prereq I D 203; certified major in interior design. Codes and specifications related to the design of the interior environment, including fire protection standards, accessibility, universal design and acoustics.


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.

...
702 Master’s Special Problems, Directed Study and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Liberal Arts
www.libarts.wsu.edu

Description of Courses
LIBERAL ARTS

Lib A
497 Extended Degree Program Internship V 2-16 May be repeated for credit; cumulative maximum 16 hours. Prereg 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, A. M. Rodriguez-Vivaldi ; 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 and Bachelor of Arts in Social Sciences. 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 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.

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 General Studies, Linguistics, and Religious Studies. French and Francophone Area Studies, a limited number of particular learning goals in 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 in any area of study is approved. Students must take 40 hours or more, including 6 hours of Diversity [D] course.

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 (120 HOURS)

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 in any area of study is approved. Students must take 40 hours or more, including 6 hours of Diversity [D] course.

Students must complete Honors requirements in place of GERs.

GENERAL STUDIES - LINGUISTICS (120 HOURS)

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

First Term Hours

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 Elective 1 3

Second Year

First Term

Linguistics Elective 1 3
Math, Cpt S, or Stat Elective 2 3
Physical Sciences [P] (GER) 4
Social Sciences [S,K] (GER) 3
Elective 3

Second Term Hours

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Linguistics Elective 3 6
Phil Elective 1 3
Elective 3
Complete Writing Portfolio

Third Year

First Term

First Term Hours

Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 6
Linguistics Elective 1 3
300-level Foreign Language Elective 4 3
Emphasis Elective 1 3

Second Term

Second Term Hours

Intercultural Studies [I,G,K] (GER) 3
Linguistics Elective 1 3
300-level Foreign Language Elective 4 3
Elective 3
Emphasis Elective 1 3

Fourth Year

First Term

First Term Hours

Linguistics Elective 1 3
300-400-level Electives 12

Second Term Hours

Tier III Course (GER) 3
300-400-level Electives 12

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.
Students must take 6-18 hours depending on special emphasis. The 6-hour minimum, if elected, must be at the 300-level or higher.

Emphasis electives are chosen in consultation with the advisor to meet the required 40 credits 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

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<td>For L Elective</td>
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<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Science Elective (GER)</td>
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Second Term

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<td>Biological Sciences [B] (GER)</td>
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<td>Communication Proficiency [C,W] (GER)</td>
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<td>For L Elective</td>
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Second Term

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<td>Complete Writing Portfolio</td>
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Junior & Senior Year — Choose one option:


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.

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 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

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Second Year

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<tbody>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>4</td>
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<tr>
<td>Communication Proficiency [C,W] (GER)</td>
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</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences [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>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Elective</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
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</tr>
<tr>
<td>Math Proficiency [N] (GER)</td>
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Second Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biological Sciences [B] (GER)</td>
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<td>Communication Proficiency [C,W] (GER)</td>
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<td>For L Elective</td>
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<td>GenEd 111 [A] (GER)</td>
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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>Primary Concentration</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>Elective</td>
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<td>Primary Concentration</td>
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Fourth Year

First Term

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<thead>
<tr>
<th>Course</th>
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<tr>
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Second Term

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<th>Course</th>
<th>Hours</th>
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<td>Arts &amp; Humanities [H,G] or</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
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Second Year

First Term

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<thead>
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<th>Course</th>
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<tr>
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Second Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
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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>
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<tr>
<td>Elective</td>
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</table>

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.

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

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
<th>Courses</th>
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<tbody>
<tr>
<td><strong>First Term</strong></td>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>Engl 101 [W] (GER)</td>
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<td>Math Proficiency [N] (GER)</td>
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<td><strong>Second Term</strong></td>
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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>Social Sciences [S,K] (GER)</td>
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### Second Year

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<td><strong>First Term</strong></td>
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</tr>
<tr>
<td>Area 1</td>
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<tr>
<td>Area 2</td>
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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>Physical Sciences [P] (GER)</td>
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<td><strong>Second Term</strong></td>
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<td>intercultural studies</td>
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<td>Area 1</td>
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<td>[I,G,K], or Social Sciences [S,K] (GER)</td>
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### Third Year

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<tr>
<td>300-400-level Area 1</td>
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<td>Area 2</td>
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<tr>
<td>Area 3</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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<td><strong>Second Term</strong></td>
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<td>Tier III Course [T] (GER)</td>
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<td>300-400-level Area 2</td>
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<tr>
<td>300-400-level Area 3</td>
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### Fourth Year

<table>
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<td><strong>First Term</strong></td>
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</tr>
<tr>
<td>300-400 Any Area</td>
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<td></td>
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<td>Electives</td>
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<td><strong>Second Term</strong></td>
<td>5</td>
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<tr>
<td>300-400 Any Area</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>12</td>
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</table>

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 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 to 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 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.

### 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 and Engineering

www.materials.wsu.edu
French Administration, Room 324
509-335-8231


Materials science includes the principles and practice of designing, synthesizing, characterizing, preparing, and fabricating useful materials. The Materials Science and Engineering Program accepts qualified bachelor's and master's graduates in the sciences and engineering who now wish to pursue graduate study 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 64 credit hours of which at least 22 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 (at least 6 credits), 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 6 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**

**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 Same as MSE 505.

**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.

**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 Materials Science** 1 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Presentation and discussion of topics in materials science taken from research in progress or current literature.

**600 Special Projects or Independent Study** V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

**800 Doctoral Research, Dissertation, and/or Examination** V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

**Department of Mathematics**

www.math.wsu.edu

Neill 103

509-335-3926

**Professor and Department Chair, K. A. Ariyawansa;**


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 six options: actuarial science, 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. A PhD student has three choices, a PhD in Mathematics, PhD in Mathematics --- Applied Mathematics option, or a PhD in Mathematics with a Teaching Emphasis. The first involves doing mathematical research, the Applied Mathematics option focuses on applied mathematical research, and the Teaching Emphasis involves research on the teaching and learning of mathematics. Masters degrees are available in the same three areas.

All students who enroll in mathematics courses are responsible for satisfying 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 http://www.math.wsu.edu placement for more information.

**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 schedules of study. 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 (120 HOURS)**

**Mathematics Major Core 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 or 251, 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 or 251, Math 402 and 420 are not required, Math 303, 325 and 330 are required, Engl 201 (or 301) is required instead of 402, and 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.

**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, and 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 2.5 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.
### 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 (background material for actuarial exams). Suggested Courses: Acctg 230 and 231, B Law 210, EconS 101, 102, 301, 302, 311, Fin 325, 350 and Math 448 provide additional background for actuarial exams.

**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, 322, and 445 or 450), approved by the Cpt S undergraduate coordinator.

**Mathematical Modeling Option**
- Required Courses: Four of: Math 340, 415, 440, 448, 456. Suggested Courses: Two of (Math 364, 416, 423, 441, 464), 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**
- Required Courses: Math 302, 303, 325, 415, 441 and 453.

**Secondary Mathematics Teaching Option**
- See separate schedule of studies below.

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<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>First Term</td>
<td>Biological Sciences [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
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<td></td>
<td>GenEd 110 [A] (GER)</td>
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<tr>
<td></td>
<td>Math 171 [N] (GER)</td>
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</tr>
<tr>
<td>Second Term</td>
<td>Cpt S 121 or 251</td>
<td>3 or 4</td>
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<tr>
<td></td>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td></td>
<td>Math 172</td>
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<td>Math 220 or 230</td>
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<td>Social Science [S,K] (GER)</td>
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<tr>
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<th>Courses</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>First Term</td>
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<td></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>
<td>Biological [B] or Physical [P] Sciences (GER)</td>
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### Third Year

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<tr>
<th>Term</th>
<th>Courses</th>
<th>Hours</th>
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<tbody>
<tr>
<td>First Term</td>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
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### Fourth Year

**First Term**
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Math 401 [M] 3
- Math Option Course¹ 3
- Electives¹ 6

**Second Term**
- Math 402 [M] 3
- Math Option Course¹ 3
- Electives¹ 8

¹ Actuarial Science Option students should take EconS 101, 102.

² Computational Mathematics Option students must take Cpt S 122.

### Fourth Year

**First Term**
- Arts & Humanities [H,G], Intercultural Studies [I,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

**Second Term**
- Biological [B] or Physical [P] Sciences (GER) 4
- Intercultural Studies [I,G,K] (GER) 3
- Math 320 or 421 [M] 3
- Math 325 3
- Math 398 1
- Math Option or 432² 3
- T & L 317 2

### Fifth Year

**First Term**
- 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**
- EdPsy 468 3
- Math Option or 432² 3
- T & L 467 3
- T & L 469 2
- T & L 470 3

**Third Year**
- T & L 415 (Student Teaching) 16

¹ Math Option courses must be 3-credit 300-400-level Math courses.
### 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 a 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.

### 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 towards 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 graded courses used to fulfill the requirements of the certificate. A faculty coordinator shall be designated to oversee the certificate approval process.

### Description of Courses

#### MATHEMATICS

**Math**

101 Intermediate Algebra 3 Fundamental algebraic operations and concepts. (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). No credit earned toward degree.

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 not available on the Pullman campus).

105 [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.

106 College Algebra 3 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 and logarithmic functions. Credit not normally granted for both Math 106 and 107.

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. Credit not normally granted for both Math 107 and either Math 106 or 108.

108 Trigonometry 2 Prereq Math 106 with a grade of C or better or satisfactory math placement score. Graphs, properties and applications of trigonometric functions. Credit not normally granted for both Math 108 and 107.


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 (3-3) Prereq Math 107 or 108 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.

151 Calculus for Middle School Teachers 3 Prereq Math 106 with a grade of C or better, or satisfactory math placement score. Differential and integral calculus in relation to middle school mathematics and real world problems through visualization, hands-on activities and technology.

171 [N] Calculus I 4 (3-3) Prereq Math 107 or 108 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 Mathematics for Business and Economics 3 Prereq Math 101 or 103 with a grade of C or better or satisfactory math placement score. Mathematical analysis using polynomial, exponential, and logarithmic functions; linear systems, linear programming and probability, for business and economic applications.

202 [N] Calculus for Business and Economics 3 Prereq Math 106, 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 106 and 108 with a grade of C or better in each; Math 107 with a grade of C or better; or satisfactory math placement score. Calculus of elementary functions; trigonometry; applications to architecture. Credit not normally granted for more than one of Math 140, 171, 202, 206.

212 [N] Introduction to Statistical Methods 4 (3-2) Prereq Math 103 or intermediate math placement score of 13. Same as Stat 212.

216 Discrete Structures 3 Prereq Math 107 or 108 with a grade of C or better, 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 Fundamentals of Elementary Mathematics I 3 (2-2) Prereq satisfactory math placement score or Math 101, 103, 106, 107, or 108 with a C or better. Comprehensive development of number systems emphasizing place-value, integers, rational numbers, and associated algorithms; methods of problem solving.

252 [N] Fundamentals of Elementary Mathematics II 3 (2-2) Prereq one year high school geometry and Math 251 with a C or better. Inquiry-based approach to fundamental concepts: measurement, geometrical constructions, similarity, congruence, symmetry, probability, counting principles, measures of central tendency, and distributions.

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 or 230 with a grade of C or better. 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 of 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.


340 Introduction to Mathematical Biology 3 Prereq Math 140 or 172 with a grade of C or better, and 3 credits of biology. Mathematical biology and development of mathematical modeling for solutions to problems in the life sciences.

351 Algebraic Thinking for the Middle School Teacher 3 Prereq Math 252 with a grade of C or better. Algebraic reasoning, classes of functions, translation among models, analytical rule, tables of data, context and coordinate graphs.

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 (STAT 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 with a grade of C or better. Properties of sets and sequences of real numbers; limits, continuity, differentiation and integration of functions; metric spaces.

402 [M] 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.

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 Math 360 and a computer programming 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 or 230, and Math 301 with grades of C or better. Advanced topics in linear algebra including similarity transformations, canonical forms, bilinear forms.

421 [M] Algebraic Structures 3 Prereq Math 301 with a grade of C or better. Properties of algebraic structures and their homomorphisms, semi-groups, groups, rings, unique factorization domains, fields.

423 Statistical Methods for Engineers and Scientists 3 Prereq Stat 360 or one 3 hour statistics course. Same as Stat 423.

425 Conceptual Aspects of Mathematics 3 Prereq college-level math course. Same as T & L 425.

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.

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.

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.

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.


490 Topics in Mathematics V 1-3 Prereq permission of instructor. Special topics in mathematics.

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. Cooperative course taught jointly by WSU and UI (MATH 494). S, F grading.

497 Instructional Practicum 1 or 2 May be repeated for credit; cumulative maximum 2 hours. By interview only. May be repeated for credit; cumulative maximum 2 hours. S, F grading.

499 Special Problems V 1 (0-3) to 4 (0-12) 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.


503 Complex Analysis 3 Prereq Math 501. Analytic functions, complex integration, Taylor and Laurent series, conformal mapping, Riemann surfaces and analytic continuation. Cooperative course taught jointly by WSU and UI (MATH 531).

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.

507 Advanced Theory of Numbers 3 May be repeated for credit; cumulative maximum 6 hours. Analytic and algebraic number theory.


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).

516 Simulation Methods 3 Prereq Math 360 and a computer programming course. Graduate-level counterpart of Math 416; additional requirements. Credit not granted for both Math 416 and 516.

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 Intersections 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.

533 Teaching College Mathematics 1 May be repeated for credit; cumulative maximum 3 hours. Prereq graduate standing in mathematics. Theory and practice of mathematics instruction at the collegiate level.

540 Applied Mathematics I 3 Prereq Math 315, 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 315, 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.

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.

550 Introduction to Algebraic Geometry 3 Prereq graduate standing. Prereq graduate standing. Affine and projective varieties, morphisms, functions on varieties, birational maps, applications. Cooperative course taught by UI, open to WSU students (MATH 558).

551 Ring Theory 3 Prereq graduate standing. Rings, ideals, modules, commutative algebra. Cooperative course taught by UI, open to WSU students (MATH 557).

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.


563 Mathematical Genetics 3 Prereq graduate standing. Mathematical approaches to population genetics and genome analysis; theories and statistical analyses of genetic parameters. Cooperative course taught jointly by WSU and UI (MATH 563).

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. 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).


574 Topics in Optimization 3 May be repeated for credit; cumulative maximum 12 hours. Prereq advanced multivariable 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 implementations.

581 Seminar in Mathematics V 1-3 May be repeated for credit. Cooperative course taught jointly by WSU and UI (MATH 541).

583 Seminar in Applied Mathematics V 1-3 May be repeated for credit. Cooperative course taught by WSU, open to UI students (MATH 583).

586 Mathematical Modeling in the Natural Science 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 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Topics in mathematics education.

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 V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for 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, Tri-Cities, and Bremerton 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. The educational objectives of the undergraduate mechanical engineering program are as follows: (1) graduates in ME shall possess a sound understanding in and be able to apply scientific principles, mathematics and engineering science to solutions of engineering problems that will allow them to be successful in the profession or in pursuing graduate studies; (2) graduates in ME shall be ready-to-work, have technical knowledge, hands-on experience, communication and critical thinking skills that will allow them to function successfully as members of technical teams in the global arena; and (3) graduates in ME shall have 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 interwoven 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 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) graduates in MSE shall possess a sound understanding of and be able to apply scientific principles, mathematics and materials science and engineering to solutions of engineering problems that will allow them to be successful in the profession or in pursuing graduate studies; (2) graduates in MSE shall be ready-to-work, have technical knowledge, hands-on research experience, and communication skills that will allow them to function individually and as members of interdisciplinary teams and the greater professional community; and (3) graduates in MSE shall understand the economic, social, environmental and ethical impact of their professional activities 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 and Engineering).

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

Applicants should have a Bachelor of Science degree from an accredited program in mechanical engineering or materials science and engineering. Students with bachelor degrees in other engineering disciplines, mathematics, and the physical sciences are routinely admitted but may be required to meet additional course 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.

MATERIALS SCIENCE AND ENGINEERING DEGREE PROGRAM (131 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 Year

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<td>C E 211</td>
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<td>Math 220</td>
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## Third Year

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## Fourth Year

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<td>Tier III Humanities or Social Sciences Course [T] (GER)</td>
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### MECHANICAL ENGINEERING DEGREE PROGRAM (128 HOURS)

#### Criteria for Certification – Mechanical Engineering Program

1. The School of Mechanical and Materials Engineering will establish the total number of students to be certified into the Mechanical Engineering program.

2. Students should apply for certification in the semester after they have completed the following seven courses: Math 171, Math 172, Chem 105, Phys 201, ME 103 (116), CE 211, and Engl 101. Students must have a minimum 2.0 cum g.p.a. and a “C” or better grade for each of the seven courses listed above to be considered for certification.

3. Students need to submit an application for certification to the Undergraduate Student Services office, Sloan 205 or electronically to newcoug@mme.wsu.edu. The application deadline is the Monday after finals week in December and May for the fall and the spring semester respectively.

4. The applicants will be ranked using the following criteria: (a) cumulative g.p.a.; (b) average g.p.a. of the following courses: Math 171, Math 172, Chem 105, Phys 201, and CE 211; (c) average g.p.a. of all the Engineering, Math, and Science courses that are required for ME and have been completed; (d) current semester’s g.p.a. Only final grades will be used in this ranking, but repeated grades will be noted. For the borderline cases, the applicants’ extended work experience, training or skills (equivalent to more than two years of full-time employment) which indicate a career commitment may be considered.

5. Students who are deficient under the University’s Educational Policies & Procedures are subject to decertification. The undergraduate studies committee will determine the eligibility and probation conditions for decertified students who will be permitted to apply for recertification.

6. Any further questions should be addressed to the Student Service Office located in Sloan 205 or newcoug@mme.wsu.edu.

### First Year

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<th>Term</th>
<th>Course and Notes</th>
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<tr>
<td>First Term</td>
<td>Chem 105 [P] (GER)</td>
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### Second Year

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<td>Phys 202 [P] (GER)</td>
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### Minors

#### Materials Science And Engineering

A minor in materials science and engineering requires 16 credits which must include M E 220 and MSE 201. An additional 12 credits must be chosen from MSE 302, 401, 402, 403, 404, 406, 413, M E 310, or E E 496. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

#### Mechanical Engineering Minor

A minor in mechanical engineering requires 16 credits of 300-400-level M E courses, including two of the following four courses: M E 303, 348, 404, 414. 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

MECHANICAL ENGINEERING

M E

116 Engineering Computer-aided Design and Visualization 2 (0-6) 3-D solid modeling, parts, engineering drawings and assemblies; geometric dimensioning and tolerancing, 3-D visualization, computational analysis of parts and assemblies.

212 Dynamics 3 Prereq Math 172 with a grade of C or better; C E 211 with a grade C or better. Kinematics and kinetics of particles and rigid bodies; introduction to mechanical vibration. Cooperative course taught jointly by WSU and UI (ENGR 220).

216 Integrated CAD Design 2 (0-6) Prereq M E 116. CAD applications in engineering design and analysis.

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 with a grade of C or better. Rec 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 major in engineering; M E 301; M E 303; Math 370 or c/. Instrumentation, data acquisition, and theory verification in the thermal and fluid sciences.

310 Manufacturing Processes 3 (2-3) Prereq MSE 201, major in engineering. Manufacturing processes, material fabrication, and nontraditional processing; manufacturing processes laboratory in machining, joining, forming; manufacturing project.

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 (2-3) Prereq Math 315; computer science programming. Analysis and modeling of engineering problems utilizing numerical and mathematical techniques and computers. Cooperative course taught jointly by WSU and UI (ME 380).

316 [M] Systems Design 3 Prereq C E 215; M E 216; major in engineering. Systems and component design; product development from specifications to manufacturing; team-based CAD design projects; engineering economics; engineering professional skills.
503 Systems Design Approaches for Sustainability 3 Prereq graduate standing. Sustainability in systems design methodologies; systems modeling and decision-making for sustainability; multidisciplinary design optimization; research topics.

509 MEMS Engineering 3 (2-3) Prereq graduate standing or permission of instructor. Introduction to the design, fabrication and application of microelectromechanical systems.

513 Crystal Plasticity 3 Prereq Math 440. Same as MSE 513.

514 Thermodynamics of Solids 3 Rec MSE 312. Same as MSE 514.

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.

517 Thin Films 3 Prereq graduate standing or senior in engineering or science. Same as MSE 517.

520 Multiscale Modeling in Thermomechanics of Materials 3 Prereq graduate standing or permission of instructor. Multiscale problems in thermomechanics of materials; practical and computational aspects of homogenization, granular materials, dislocation plasticity and atomistic methods.

521 Fundamentals of Fluids 1 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. Cooperative course taught by WSU, open to UI students (ME 520).

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, open to WSU students (ME 513).

525 Biomechanics 3 Prereq B E 320, C E 215 or MSE 301; Math 315. Same as B E 525.

527 Macroscopic Thermodynamics 3 Advanced thermodynamics from a macroscopic viewpoint; basic postulates, equilibrium, stability, property relations; application to thermal-fluid and solid mechanics; irreversible thermodynamics. Cooperative course taught jointly by WSU and UI (ME 527).

530 Elasticity 3 Prereq M E 414; graduate standing. Theory of kinematics of solid deformable bodies; conservation laws applied to an elastic continuum; generalized linear stress-strain behavior with applications. Cooperative course taught by WSU, open to UI students (ME 548).

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.

534 Mechanics of Composite Materials 3 Prereq M E 414. Analysis of micromechanical and macromechanical behavior of composite materials with emphasis on fiber-reinforced composite; 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 (ME 504).

546 Biomaterials 3 Prereq MSE 406 and 506. Introduction to the design, fabrication and optimization; research topics.

556 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.

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 521).

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 Mechanical Engineering V 1-3 May be repeated for credit.

580 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Materials Science and Engineering

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.

202 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. Cooperative course taught by WSU, open to UI students (ME 402).

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.


483 Topics in Materials Engineering V 1 (0-4) to 4 (0-12) May be repeated for credit; cumulative maximum 7 hours. Contemporary topics in materials engineering.

499 Special Problems V 1 (0-3) to 4 (0-12) 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 Broad baseline in materials science including relationships between structure and properties.

506 Biocomposites 3 Prereq MSE 201 and permission of instructor. Graduate-level counterpart of MSE 406; additional requirements. Credit not granted for both MSE 406 and 506.

508 Polymer Nanocomposites and Functionalities 3 Prereq MSE 402 or 404 rec. Structures, properties, fabrication and applications of nano-scale material and their polymer nanocomposites; functionalities including flame retardant, electrically, thermal and damping properties.

509 MEMS Engineering 3 (2-3) Prereq graduate standing. Same as MSE 509.

513 Crystal Plasticity 3 Prereq Math 440. Dislocation theory; slip; climb; mechanical properties of polycrystalline materials and application to important deformation processes. Cooperative course taught by WSU, open to UI students (ME 531).

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 science. Materials science aspect of thin films, including growth, characterization, and properties for electrical, mechanical, corrosion, and optical behavior.

520 Multiscale Modeling in Thermodynamics of Materials 3 Prereq graduate standing or permission of instructor. Same as M E 520.

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.

530 Elasticity 3 Prereq M E 414; graduate standing. Same as M E 530. Cooperative course taught by WSU, open to UI students (ME 548).

531 Theory of Plasticity 3 Rec M E 501. Same as M E 531. Cooperative course taught by WSU, open to UI students (ME 531).

534 Mechanics of Composite Materials 3 Prereq M E 414. Same as M E 534. Cooperative course taught jointly by WSU and UI (ME 534).

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. Same as C E 593.

544 Natural Fibers 3 Prereq graduate standing. Same as C E 594.

545 Polymer and Composite Processing 3 Prereq graduate standing. Same as C E 595.

546 Engineered Wood Composites 3 Same as C E 596.

547 Polymers and Surfaces for Adhesion 3 Prereq MSE 402 or 404. Same as C E 597.

548 Natural Fiber Polymer Composites 3 Prereq graduate standing. Same as C E 598.

592 Transmission Electron Microscopy 3 Development of the principles and applications of electron optics in microscopy.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Department of Military Science

www.wsu.edu/~armyrotc
Avery 405
509-335-2591

Professor and Department Chair, Lieutenant Colonel C. A. Whiteside.

The Department of Military Science is the formal designation of the Army ROTC program at Washington State University. It is designed to educate, train, and motivate qualified students to serve as commissioned officers in the U.S. Army upon graduation. The military science department offers academic, professional, and technical education and training that complements the educational programs and goals 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 in the advanced course is offered only with the approval of the department chair.

At WSU, military science courses emphasize training in a practical environment. Students learn leadership skills through classroom instruction, on-campus leadership labs, and summer training opportunities. The goal of this training is to develop leadership goals applicable in both military and civilian occupations. During the summer between the junior and senior year of academic study, enrolled cadets must attend the Leadership Development and Assessment Course at Fort Lewis, WA. This is a 28 day leadership practicum administered by Officers and NCOs of the U.S. Army that develops and assesses the leadership capabilities of the cadets.

Competitive, merit-based scholarships are available to deserving individuals. These scholarships pay either Tuition and associated fees, or Room and Board. Scholarship winners also receive $1200/ year for books ($600 each semester). Basic course cadets receive a monthly tiered stipend ranging from $300/month for freshmen to $500/month for seniors. High school students may apply for a four-year Army ROTC scholarship in the fall of their senior year (high school) if they are interested in pursuing a military career. Students at WSU may apply for two- or three-year scholarships if they have a similar interest. Scholarships are also available for those students interested in pursuing commissioned service in the National Guard or Army Reserve, without a full-time commitment to active duty upon graduation.

Upon successful completion of the advanced course and graduation from WSU, cadets are commissioned as U.S. Army officers and serve in either the active Army, the Army Reserve, or the Washington National Guard.

Minors

Military Science

A Military Science minor requires 18 hours of approved Military Science courses, with at least 9 hours of 300-400-level credits taken in residence at
Description of Courses

MILITARY SCIENCE

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.

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 (0-18) 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 (0-18) Prereq junior standing. By interview only. Fully funded non-commital 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 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

School of Molecular Biosciences

molecular.biosciences.wsu.edu

Biototechnology-Life Sciences 102 509-335-1276

Director and Professor, J. Nilson; Senior Associate Director and Professor, M. Konkel; Associate Director of Graduate Programs and Associate Professor, L. Gloss; Associate Director of Undergraduate Programs and Associate Professor, W. Davis; Associate Director of Alumni Relations and Clinical Associate Professor, M. Sanchez-Lanter; Assistant Director DDP and Clinical Associate Professor, N. McCabe; Assistant Director of Undergraduate Laboratories and Clinical Associate Professor, C. Helmick; Regents Professors, M. Griswold, M. Smerdon; Professors, J. Alderete, R. Brosemer, T. Hassold, P. Hunt, M. Hunzicker-Dunn, M. Kahn, K. H. Kim, N. Magnuson, S. Muradilhanur, R. Reeves, L. Xun; Associate Professors, C. Her, K. Roberts (Spokane), E. Shelden, S. Sylvester (Vancouver), J. Wyrick; Assistant Professors, W. An, W. Chai (Spokane), C. Cooper (Vancouver), C. Hasseltine, M. Hess (Tri-Cities), J. Oatley, S. Wang, J. Watts, P. Ye; Additional Graduate Faculty; K. Brayton, W. Brown, J. Browse, J. Harding, B. Lange, L. Lavine, B. Rodgers, L. Thomashow, G. Thorgaard; Clinical Associate Professor, P. Mixter; Clinical Assistant Professors, D. Mitchell (Tri-Cities), M. Rolfsmeier, J. Stanton.

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, 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.

At the graduate level, the school offers programs leading to the degrees of Master of Science in Molecular Biosciences and Doctor of Philosophy (Molecular Biosciences).

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, DNA-protein 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.

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.

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,
bio remediation, 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
teaching medical 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
instruments 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.

**CERTIFICATION REQUIREMENTS:**
A student must meet the following three
requirements to be eligible to certify as a SMB major in biochemistry, genetics and cell biology,
and microbiology:

105 and Chem 106, or transfer equivalents, with a
minimum grade of C.

6. Earn a minimum cumulative GPA of at
least 2.50

7. Earn a minimum of 24 semester hours.

Students must maintain a minimum cumulative
GPA of 2.50 for all WSU courses to remain certified
depending on academic regulations. A certified major who falls below the minimum requirements will be
decertified according to Academic Regulations 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.

**Schedules of Studies**

Students must complete one American
Diversity [D] course to meet the General
Education Requirements (GERs). Choose
one humanity, 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.

**BIOCHEMISTRY - BIOCHEMISTRY/
BIOPHYSICS OPTION**
*(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><strong>First Term</strong></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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<tr>
<td>Math 171 [N] (GER)</td>
<td>4</td>
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<tr>
<td><strong>Second Term</strong></td>
<td><strong>Hours</strong></td>
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<td>Chem 106 [P] (GER)</td>
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<td>Social Sciences [S,K] (GER)</td>
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<td>Complete Writing Portfolio</td>
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<tr>
<td>Communication Proficiency [C,W] (GER)</td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
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<tr>
<td>MBioS 454 [M]</td>
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<tr>
<td>MBioS 465</td>
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<td>MBioS 305</td>
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<td><strong>First Term</strong></td>
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<td>3</td>
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<tr>
<td>MBioS 413</td>
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<td>MBioS 466</td>
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<td><strong>Second Term</strong></td>
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<td>MBioS 414</td>
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<tr>
<td>Elective</td>
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1 Science elective: 3 credits from MBioS 401, 404, 478, 498, 499, or Phys 466.

**BIOCHEMISTRY - BIOCHEMISTRY/
MOLECULAR BIOLOGY OPTION**
*(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><strong>First Term</strong></td>
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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 110 [A] (GER)</td>
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<tr>
<td><strong>Second Term</strong></td>
<td><strong>Hours</strong></td>
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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>
<td>GenEd 111 [A] (GER)</td>
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<td>Math 140 [N] or 171 [N] (GER)</td>
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<td><strong>First Term</strong></td>
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<td>Chem 3451</td>
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<tr>
<td>MBioS 301</td>
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<td>Phys 101 [P] or 201 [P] (GER)</td>
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<td><strong>Second Term</strong></td>
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<td>Chem 346</td>
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<tr>
<td>MBioS 303</td>
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<tr>
<td>Phys 102 [P] or 202 [P] (GER)</td>
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<td>Social Sciences [S,K] (GER)</td>
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<td>Complete Writing Portfolio</td>
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<td><strong>First Term</strong></td>
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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Communication Proficiency [C,W] (GER)</td>
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<tr>
<td>Math 172, Stat 212 [N] (GER), or Stat 412</td>
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<td>MBioS 304 [M]</td>
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<td>MBioS 404</td>
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<td><strong>Second Term</strong></td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>MBioS 305</td>
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<td>MBioS 465</td>
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<tr>
<td>Science Elective2</td>
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<td>elective</td>
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<td><strong>First Term</strong></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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<td>MBioS 413</td>
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<td>MBioS 454 [M]</td>
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<td>MBioS 494</td>
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<td>Electives</td>
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<td><strong>Second Term</strong></td>
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<td>MBioS 401</td>
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<td>MBioS 414</td>
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<td>Tier III Course [T] (GER)</td>
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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, 442, 450, 466, 478, 498, 499.
### GENETICS AND CELL BIOLOGY (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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#### Third Year

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#### Fourth Year

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<th>Term</th>
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<th>Courses</th>
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### Microbiology and Medical Technology (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

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#### Second Year

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<th>Term</th>
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<th>Courses</th>
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### Minors

#### Biochemistry

A minor in biochemistry requires 20 hours including Chem 345, 346; MBioS 303, 304, 413; MBioS 414 or 465. A grade of C or better is required in all courses used in the minor. None of these courses may be taken pass/fail. 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.

#### 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, 425, 426, 427, 478. 9 hours of upper-division work must be 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.

#### Microbiology

A minor in microbiology requires a minimum of 17 credit hours including MBioS 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, 498, 499. 9 hours of upper-division work must be 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.

#### 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 WSU-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 WSU-approved education abroad or educational exchange courses.

Certificates

Molecular Biosciences

The Certificate in Molecular Biosciences requires a minimum of 18 hours. Students are expected to have already completed courses equivalent to one year of freshman chemistry for science majors; one year of freshman biology for science majors; and one semester of organic chemistry; all through an accredited institution of higher education before working towards this certificate. The 15 hour core is: MBioS 101 or 305 and 306; MBioS 303; and Phil 260. 3 hours of electives are selected from: Anth 468, Biol 330, Crm J 320, MBioS 130, 320, or 342. A grade of C or better must be earned in all classes that apply towards this certificate. Most of the courses required for this certificate have prerequisites. Please consult the catalog to assure that these prerequisites have been met prior to registering for courses.

Description of Courses

MOLECULAR BIO SCIENCES

MBioS

101 [B] Introductory Microbiology 4 (3-3)

Microbiology for the informed citizen as it impacts humans and their environment. Not for students who have taken Biol 106 and 107.

130 [B] Nutrition for Living 3 Information related to the interaction of nutrients in the body and factors that govern nutrient requirements.


233 Human Nutrition 3 Rec biology 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.

301 General Genetics 4 Prereq Biol 106 or 120; Biol 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 102 or 345 . 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.

342 Microbial Ecology 3 Prereq Biol 106; Chem 345 or c/. Discussion of microorganism 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. Credit not granted for both MBioS 401 and 501.

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/; MBioS 303. Introduction of prokaryotic and eukaryotic genome organization and gene expression, modern molecular techniques, experimental approaches, genome and gene function and analyses.

405 Cell Biology of Disease 3 Prereq MBioS 301 or 303. Discussion of human diseases characterized by cell biological defects, using popular press and research articles as a source of information.

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 enzymeology; biochemical methodology. Credit not granted for both MBioS 413 and 513.

414 General Biochemistry 3 Prereq MBioS 413. Metabolism of carbohydrates, proteins, fats, bioenergetics; photosynthesis; control of metabolic processes. Credit not granted for both MBioS 414 and 514.

423 Human Genetics 3 Prereq MBioS 301. Exploration of individual and population genetics leading to critical discussion of current social, medical, and scientific issues.

426 Microbial Genetics 3 Prereq MBioS 301; 303. Genetics of bacteria, bacteriophages and plasmids; regulation of gene expression; genetic manipulation of microorganisms.

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 c/; The biology of bacterial, animal, and plant viruses. Credit not granted for both MBioS 442 and 542.

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. Cooperative course taught by WSU, open to UI students (MMBB 420).

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 466 and 566.


490 Special Topics in Molecular Biology V 1-2 May be repeated for credit; cumulative maximum 6 hours. Prereq senior standing. Current topics discussed by experts in the field.

494 Senior Project in Molecular Biosciences 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 6 hours. Prereq by permission only. Experience in work related to specific career interests. S, F grading.

498 Directed Research V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 100 hours. Introduction to laboratory research; requires written report and oral presentation.

499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 100 hours. S, F grading.
501 Cell Biology 3 Prereq MBioS 301, 303, or graduate standing; c// with MBioS 529 highly recommended. Graduate-level counterpart of MBioS 401; additional requirements. Credit not granted for both MBioS 401 and 501.

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.

505 Cell Biology of Disease 3 Prereq MBioS 301 or 303. Graduate-level counterpart of BIOL 405; additional requirements. Credit not granted for both BIOL 405 and 505.

507 Critical Analysis of Scientific Literature 2 Prereq MBioS 303; MBioS 513 or c//. Dissection and discussion of current molecular bioscience papers to foster development of critical reading of primary literature.

508 Quantitative Approaches in Molecular Biosciences 2 Prereq one semester of calculus, MBioS 513, 507. Quantitative methods and techniques using examples from the current molecular biosciences primary literature.

513 General Biochemistry I 3 Prereq MBioS 303, graduate standing. Graduate-level counterpart of MBioS 413; additional requirements. Credit not granted for both MBioS 413 and 513.

514 General Biochemistry 3 Prereq MBioS 413, or graduate standing. Graduate-level counterpart of MBioS 414; additional requirements. Credit not granted for both 414 and 514.

528 Molecular and Cellular Reproduction 3 (2-2) State of the art concepts of the molecular, cellular, and physiological aspects of mammalian reproduction. Cooperative course taught by WSU, open to UI students (BIOL 559).

529 Selected Topics in Cell Biology 1 Prereq MBioS 401 or c// MBioS 501. Selected topics in cell biology using current literature.

540 Immunology 3 Prereq MBioS 305; organic chemistry or graduate standing; c// with MBioS 548 highly recommended. Graduate-level counterpart of MBioS 440; additional requirements. Credit not granted for both MBioS 440 and 540.

541 Research Seminar 1 May be repeated for credit; cumulative maximum 2 hours. Literature reviews and research reports. S, F grading.

542 General Virology 3 Prereq MBioS 301; 303 or c//; organic chemistry or graduate standing; c// with MBioS 548 highly recommended. Graduate-level counterpart of MBioS 442; additional requirements. Credit not granted for both MBioS 442 and 542.

548 Selected Topics in Immunology & Virology 1 May be repeated for credit. 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 May be repeated for credit; cumulative maximum 2 hours. 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.

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 Molecular Biosciences V 1-3 May be repeated for credit. Prereq MBioS 513 or c//. Recent research in selected areas of molecular biosciences.

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.

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 V 1-2 May be repeated for credit; cumulative maximum 10 hours. Required of all graduate students in molecular biosciences. May be repeated for credit; cumulative maximum 10 hours.

580 Science Information Literacy 2 Efficient methods to locate and effectively use a wide variety of information resources that will be useful in the work world.

593 Research Proposal 2 May be repeated for credit; cumulative maximum 4 hours. Written and oral presentation of an area in molecular biosciences. May be repeated for credit; cumulative maximum 4 hours.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Program in Molecular Plant Sciences

www.officeofresearch.wsu.edu/mps

324 French Administration Bldg.

509-335-1716


Graduate study leading to the Doctor of Philosophy degree 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 photosensitization, nitrogen fixation, phytochemistry, 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 under enrollment in the graduate program on a provisional basis. Degree requirements 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**

**MPS**

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.

525 Plant Molecular Genetics 3 graduate standing Introduction to plant genome organization and gene expression while acquiring knowledge of modern molecular techniques and experimental approaches.

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 V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master's Research, Dissertation and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

**School of Music**

[http://libarts.wsu.edu/music](http://libarts.wsu.edu/music)

**Kimbrough 260**

509-335-3898


The School of Music prepares students for careers in music with degrees in performance, composition, and music education.

**Vision**

Music and its effective presentation are inextricable from the essential qualities of every world culture. WSU’s School of Music, long recognized for excellence in performance and pedagogy, will therefore contribute to the advancement of music through widely visible and impactful creative activity, scholarship and research in selected aspects of music. It will sustain such advancement of the field through preparation of the next generation of societal leaders whose involvement in music will range from appreciation of and support for music's value and centrality to its creation in professional performance, composition, and music education.

**Mission**

The School of Music supports the university's land-grant mission and tradition of service to society, while contributing substantially to the College of Liberal Arts in creative activity, research and scholarship towards improving Cultural Understanding and International and Intercultural Relations. The mission focuses on:

- Advancing the field of music through internationally/nationally recognized achievements in composition, performance, recording, articles, books, conference presentations, and leadership in music education.
- Providing students university-wide superior musical experiences and preparing future professionals in music for successful careers as performers, composers, music educators, scholars, and leaders in a global society.
- Contributing to the cultural life of the university and region through the regular presentation of inspired and meaningful musical events.

See School of Music website for complete plan of Vision/Mission/Values/ Goals at libarts.wsu.edu/music.

**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. Students often elect a minor in another field.

**Bachelor of Music**

This program offers majors for specialization in performance, composition and music education. The curriculum is designed to prepare students as professional musicians, teachers, and practitioners of music. 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 and Composition**

This major offers professional preparation in music with specialization in performance or composition. The curriculum is designed to prepare students to become professional performers in their respective major instrument or voice, or professional composers. Students following options in performance or composition are required to present an acceptable senior recital in the major performance medium, or compositions for composition majors. Students following options in performance are also required to present an acceptable junior recital in the major performance medium. Students pursuing Performance in Jazz Studies are limited to specific major performance instruments as stated in the degree description.

**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.

**Bachelor of Music in Music Education, option without endorsement**

This degree provides valuable, current, and marketable options for students seeking pre-professional training in music, and in music education. Students in this option may opt to apply for the MA program of study in music at WSU where they may elect to complete courses required for a teaching endorsement and state certification. Admission to graduate school and the School of Music graduate program following completion of this degree is determined by application on an individual basis.

**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.

**Schedule of Studies**

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 semesters and credit hours of performance studies to complete a degree than listed in this schedule of studies.

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, 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 B- 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 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.

**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 MUSIC (120 HOURS)**

The following degree was under review at the time of Catalog publication. Approval of a revised degree plan is anticipated to be effective fall 2012. Assuming approval, students entering WSU in fall 2011 will certify their majors in music under the revised degree plan. The revised degree plan will also appear in the Music Student Handbook to be available to music students in early fall 2011.

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**

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<th>Term</th>
<th>Hours</th>
<th>Course Code</th>
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<td>Mus 251</td>
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**Second Year**

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<td>Physical [P] Sciences (GER)</td>
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**Third Year**

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**Fourth Year**

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<td>200-400-level Non-Music Electives</td>
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BACHELOR OF MUSIC - BUSINESS OPTION (120 HOURS)

The following degree was under review at the time of Catalog publication. Approval of a revised degree plan is anticipated to be effective fall 2012. Assuming approval, students entering WSU in fall 2011 will certify their majors in music under the revised degree plan. The revised degree plan will also appear in the Music Student Handbook to be available to music students in early fall 2011.

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.

Certification of the minor requires prior certification in music. Other requirements include a C or better in all music courses; 2.5 music average; upper-division exam; piano proficiency exam. At least 42 of the hours required for this degree must be 300-400-level courses.

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 3.0 GPA and a grade of C or better in all music classes. The 3 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 College of Business and Economics offers several minors. Criteria for certification of a minor include completion of 60 credits and meeting other criteria set by the College of Business and Economics. Some business and economics minors require only 16 credits; this number has been used in calculating the degree credit total. Where a minor requires additional credits, either students may use elective hours or must complete additional credits for the degree. In order to take 300-400-level courses in the College of Business and Economics, the students must be certified in her/his major and have completed at least 60 credits.

**First Year**

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<tr>
<th>Term</th>
<th>Hours</th>
<th>Course Description</th>
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<tr>
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<td></td>
<td>3</td>
<td>Mus 181(^1)</td>
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<td>0 or 1</td>
<td>Mus 251(^2)</td>
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<td>3</td>
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<td>Mus Ensemble 428-444</td>
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<td>Second Term</td>
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<td><strong>Communication Proficiency [C,W] (GER)</strong></td>
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<td>Mus 181(^1)</td>
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<td>Mus 251(^2)</td>
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<td></td>
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<td>Complete Writing Portfolio</td>
</tr>
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</table>

1 Class piano credits not required for degree.
2 Fall only.
3 Spring only.
4 Mus 360 and 361 fulfill the College of Liberal Arts [H,G,S,K,I] requirement.
5 Spring only.

**Second Year**

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<tr>
<th>Term</th>
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<tr>
<td>First Term</td>
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<td>Mus 352(^4)</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>
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<td><strong>Science Elective (GER)</strong></td>
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<td>Mus 361 [M](^4)</td>
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<td>Mus 428 or 435</td>
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<td></td>
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<td>Mus 452(^5)</td>
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<td>Mus 481(^6)</td>
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<td>Mus Private Lessons</td>
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</table>

1 Class piano credits not required for degree.
2 Fall only.
3 Spring only.
4 Mus 360 and 361 fulfill the College of Liberal Arts [H,G,S,K,I] requirement.
5 Spring only.

**Third Year**

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<tr>
<td>First Term</td>
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<td>Business Minor Courses</td>
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<td>Second Term</td>
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<td><strong>Science Elective (GER)</strong></td>
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<td>3</td>
<td>Social Sciences [S,K] (GER)</td>
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<td>Complete Writing Portfolio</td>
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</table>

1 Class piano credits not required for degree.
2 Fall only.
3 Spring only.
4 Mus 360 and 361 fulfill the College of Liberal Arts [H,G,S,K,I] requirement.
5 Spring only.

**Fourth Year**

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<td>Mus Ensemble 428-444</td>
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<td>Mus Private Lessons</td>
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1 Class piano credits not required for degree.
2 Fall only.
3 Spring only.
4 Mus 360 and 361 fulfill the College of Liberal Arts [H,G,S,K,I] requirement.
5 Spring only.

**MUSIC COMPOSITION DEGREE (127 HOURS)**

The following degree was under review at the time of Catalog publication. Approval of a revised degree plan is anticipated to be effective fall 2012. Assuming approval, students entering WSU in fall 2011 will certify their majors in music under the revised degree plan. The revised degree plan will also appear in the Music Student Handbook to be available to music students in early fall 2011.

This major offers professional preparation in music with specialization in composition. The curriculum is designed to prepare students for 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**

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<td>Mus 251(^2)</td>
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1 Class piano credits not required for degree.
2 Fall only.
3 Spring only.
4 Mus 360 and 361 fulfill the College of Liberal Arts [H,G,S,K,I] requirement.
5 Spring only.

**Second Year**

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1 Class piano credits not required for degree.
2 Fall only.
3 Spring only.
4 Mus 360 and 361 fulfill the College of Liberal Arts [H,G,S,K,I] requirement.
5 Spring only.

**Third Year**

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<td>Biological Sciences [B] (GER)</td>
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<tr>
<td></td>
<td>4</td>
<td>Mus 256</td>
</tr>
<tr>
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<td>2</td>
<td>Mus 353(^4)</td>
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<tr>
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<td>Mus Ensemble</td>
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<tr>
<td></td>
<td>2</td>
<td>Mus Private Lessons</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Complete Writing Portfolio</td>
</tr>
</tbody>
</table>

1 Class piano credits not required for degree.
2 Fall only.
3 Spring only.
4 Mus 360 and 361 fulfill the College of Liberal Arts [H,G,S,K,I] requirement.
5 Spring only.
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.

The following degree was under review at the time of Catalog publication. Approval of a revised degree plan is anticipated to be effective fall 2012. Assuming approval, students entering WSU in fall 2011 will certify their majors in music under the revised degree plan. The revised degree plan will appear in the Music Student Handbook to be available to music students in early fall 2011.

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.

MUSIC EDUCATION - BROAD ENDORSEMENT OPTION (152 HOURS)

The following degree was under review at the time of Catalog publication. Approval of a revised degree plan is anticipated to be effective fall 2012. Assuming approval, students entering WSU in fall 2011 will certify their majors in music under the revised degree plan. The revised degree plan will also appear in the Music Student Handbook to be available to music students in early fall 2011.

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.
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

#### First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<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>
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<td>Mus 251</td>
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<td>Mus 252</td>
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<tr>
<td>Mus Ensemble</td>
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<tr>
<td>Mus Private Lessons</td>
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<tr>
<td>Psych 105 [S] (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>
<tr>
<td>Math Proficiency [N] (GER)</td>
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<tr>
<td>Mus 182</td>
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<td>Mus Ensemble</td>
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<td>Mus 352</td>
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<td>Mus 491</td>
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<tr>
<td>Mus Private Lessons</td>
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<tr>
<td>T &amp; L 301</td>
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<td><strong>Second Term</strong></td>
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<td>Mus 353</td>
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<td>Mus 359</td>
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<td>Mus 490</td>
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<td><strong>Third Year</strong></td>
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<td>Mus 360 [M]</td>
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### Second Year

#### First Term

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</tr>
<tr>
<td>Mus Ensemble</td>
<td>1</td>
</tr>
<tr>
<td>Mus Private Lessons</td>
<td>2</td>
</tr>
<tr>
<td>Science Elective [B,P,Q] (GER)</td>
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<tr>
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### Fourth Year

#### First Term

<table>
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<th>Course</th>
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<tr>
<td>Mus 428</td>
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<td>Mus 455</td>
<td>2</td>
</tr>
<tr>
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**Second Term**

<table>
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<tbody>
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<td>EdPsy 468</td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Physical Science [P] (GER)</td>
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<tr>
<td>T &amp; L 470</td>
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<td>Tier III Course [T] (GER)</td>
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#### Fifth Year

**First Term**

<table>
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<td>Mus 497</td>
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<td>T &amp; L 415</td>
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### Fifth Year

#### First Term

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<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Mus 181</td>
<td>0 or 1</td>
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<td>Mus 251</td>
<td>3</td>
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<td>Mus 253</td>
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<tr>
<td>Mus 254</td>
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<tr>
<td>Mus 491</td>
<td>2</td>
</tr>
<tr>
<td>Mus Ensemble</td>
<td>1</td>
</tr>
<tr>
<td>Mus Private Lessons</td>
<td>2</td>
</tr>
<tr>
<td>T &amp; L 301</td>
<td>3</td>
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<tr>
<td><strong>Second Term</strong></td>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Math Proficiency [N] (GER)</td>
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<tr>
<td>Mus 182</td>
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<td>Mus 351</td>
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<td>Mus 352</td>
<td>1</td>
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<td>Mus 491</td>
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<td>Mus Ensemble</td>
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<td>Mus Private Lessons</td>
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<tr>
<td>T &amp; L 317</td>
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<td>Certify Major, Certify T &amp; L Complete Writing Portfolio</td>
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### Third Year

**First Term**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
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<tr>
<td>Mus 360 [M]</td>
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<tr>
<td>Mus 482</td>
<td>1</td>
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<tr>
<td>Mus Ensemble</td>
<td>1</td>
</tr>
<tr>
<td>Mus Private Lessons</td>
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</table>
Science Elective [B,P,Q] (GER) 4  
T & L 464 3

Second Term
- Hours
Biological Sciences [B] (GER) 4
Mus 361 [M] 3
Mus Ensemble 1
Mus Private Lessons 2
T & L 465 3
T & L 466 2

Fourth Year
First Term
- Hours
400-level Mus Private Lessons 2
Mus 435 1
Mus 455 3
Mus 480 2
Mus 493 2
T & L 467 3
T & L 469 2

Second Term
- Hours
EdPsy 468 3
Mus 487 2
Mus 494 2
Physical Sciences [P] (GER) 4
T & L 470 3
Tier III Course [T] (GER) 3
Ensemble and Mus Private Lessons--optional
Fifth Year
First Term
- Hours
Mus 497 4
T & L 415 12

MUSIC EDUCATION - WITHOUT TEACHING CERTIFICATE OPTION
(123 HOURS)

The following degree was under review at the time of Catalog publication. Approval of a revised degree plan is anticipated to be effective fall 2012. Assuming approval, students entering WSU in fall 2011 will certify their majors in music under the revised degree plan. The revised degree plan will also appear in the Music Student Handbook to be available to music students in early fall 2011.

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 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; upper-division 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.

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) 3
GenEd 110 [A] (GER) 3
Mus 181 3
Mus 251 3
Mus 253 1
Mus Ensemble 428-444 1
Mus Private Lessons 2
Psych 105 [S] (GER) 3

Second Term
- Hours
Engl 201 [W] (GER) 3
GenEd 111 [A] (GER) 3
Math Proficiency [N] (GER) 3
Mus 182 3
Mus 253 3
Mus 254 1
Mus Ensemble 428-444 1
Mus Private Lessons 2

Second Year

First Term
- Hours
Mus 182 0 or 1
Mus 351 3
Mus 352 1
Mus 491 2
Mus Ensemble (Instrumental) 1
Mus Private Lessons 2
Science Elective [B,P,Q] (GER) 4
T & L 301 3

Second Term
- Hours
Mus 353 3

Third Year

First Term
- Hours
Mus 258 3
Mus 360 [M] 3
Mus 455 2
Mus Ensemble (Choral) 1
Mus Private Lessons 2
T & L 464 3
T & L 465 3

Second Term
- Hours
Arts & Humanities [H,G] (GER) 3
Mus 361 [M] 3
Mus 428 or 435 1
Mus Private Lessons 2
Physical Science [P] (GER) 4
T & L 466 2

Fourth Year

First Term
- Hours
Biological Sciences [B] (GER) 4
Mus 455 2
Mus 580 or Electives 3
Mus Endorsement Electives 2
Mus Ensemble (Choral) 1
Mus Private Lessons (400-level, Sr. Recital) 2
Tier III Course [T] (GER) 3

Second Term
- Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Intercultural Studies [I,G,K] (GER) 3
Mus Endorsement Electives 4

Music Performance - Brass, Percussion, Strings, Winds Option
(130 HOURS)

The following degree was under review at the time of Catalog publication. Approval of a revised degree plan is anticipated to be effective fall 2012. Assuming approval, students entering WSU in fall 2011 will certify their majors in music under the revised degree plan. The revised degree plan will also appear in the Music Student Handbook to be available to music students in early fall 2011.

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

First Term
Music

Engl 101 [W] (GER) 3
Mus 181 0 or 1
Mus 251 3
Mus 252 1
Mus Ensemble 1
Mus Private Lessons 4
Science Elective (GER) 4

Second Term

Mus Private Lessons 4
Mus Ensemble
Mus 453
Mus 392 or 393 or 394

Second Term Hours

Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
GenEd 111 [A] (GER) 3
Mus 182 0 or 1
Mus 253 3
Mus 254 1
Mus Ensemble 1
Mus Private Lessons 4

First Term

Communication Proficiency [C,W] (GER) 3
GenEd 110 [A] (GER) 3
Mus 351 1
Mus 352 1
Mus Ensemble 1
Mus Private Lessons 4

Math Proficiency [N] (GER) 3
Mus 182 or 281 3
Mus 353 3
Mus 354 1
Mus 359 3
Mus Ensemble 1
Mus Private Lessons 4
Secondary Instrument or Mus 487 2

First Year

Music Electives 4
Tier III Course [T] (GER) 3

Third Year

First Term

Applied 4
Mus 258 2
Mus 360 [M] (GER) 3
Mus 457 2
Mus Ensemble 428-444 1

First Term Hours

Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
Mus 361 [M] (GER) 3
Mus 458 2
Mus 481 1
Mus Ensemble 428-444 1
Secondary Instrument or Mus 465 2

Fourth Year

First Term

Applied 4
Biological Sciences [B] (GER) 4
Intercultural Studies [I,G,K] (GER) 3
Mus 362 3
Mus 482 or 483 1
Mus Ensemble 428-444 1

First Term Hours

Music Electives (Mus 491 if vocal option) 5
Mus Ensemble 428-444 1
Physical Sciences [P] (GER) 4
Tier III Course [T] (GER) 3

Second Year

Mus 361 [M] 3
Mus 435 1
Mus 481 1
Mus 485 1
Mus Electives 2
Mus Private Lessons 4
Physical Sciences [P] (GER) 4

Mus 252 1
Mus Ensemble 428-444 1

Second Term

First Term Hours

Communication Proficiency [C,W] (GER) 3
GenEd 111 [A] (GER) 3
Mus 182 0-1
Mus 254 1

Second Term

First Term

Applied 4
Mus 258 2
Mus 457 2
Mus Ensemble 428-444 1

Second Term Hours

Mus 392 or 393 or 394 1
Mus 453 1
Mus Private Lessons 4

Music PERFORMANCE - FLUTE, PERCUSSION, SAXOPHONE, STRING BASS, TRUMPET, AND VOICE (JAZZ STUDIES) (127 HOURS)

The following degree was under review at the time of Catalog publication. Approval of a revised degree plan is anticipated to be effective fall 2012. Assuming approval, students entering WSU in fall 2011 will certify their majors in music under the revised degree plan. The revised degree plan will also appear in the Music Student Handbook to be available to music students in early fall 2011.

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.

Third Year

First Term

Applied 4
Mus 258 2
Mus 360 [M] (GER) 3
Mus 457 2
Mus Ensemble 428-444 1

First Term Hours

Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
Mus 361 [M] (GER) 3
Mus 458 2
Mus 481 1
Mus Ensemble 428-444 1
Secondary Instrument or Mus 465 2

Fourth Year

First Term

Applied 4
Biological Sciences [B] (GER) 4
Intercultural Studies [I,G,K] (GER) 3
Mus 362 3
Mus 482 or 483 1
Mus Ensemble 428-444 1

First Term Hours

Music Electives (Mus 491 if vocal option) 5
Mus Ensemble 428-444 1
Physical Sciences [P] (GER) 4
Tier III Course [T] (GER) 3

Second Term

Mus 361 [M] 3
Mus 435 1
Mus 481 1
Mus 485 1
Mus Electives 2
Mus Private Lessons 4
Physical Sciences [P] (GER) 4

Second Term Hours

Mus 252 1
Mus Ensemble 428-444 1

Music PERFORMANCE - KEYBOARD OPTION (127 HOURS)

The following degree was under review at the time of Catalog publication. Approval of a revised degree plan is anticipated to be effective fall 2012. Assuming approval, students entering WSU in fall 2011 will certify their majors in music under the revised degree plan. The revised degree plan will also appear in the Music Student Handbook to be available to music students in early fall 2011.

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.
Music

First Year

First Term

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<th>Course Name</th>
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<td>Secondary Instrument</td>
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<td>Mus 441</td>
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Second Term

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<td>Mus 441</td>
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<tr>
<td>Mus 181</td>
<td>Music Performance - Keyboard with Elective Studies in Pedagogy Option (129 Hours)</td>
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The following degree was under review at the time of Catalog publication. Approval of a revised degree plan is anticipated to be effective fall 2012. Assuming approval, students entering WSU in fall 2011 will certify their majors in music under the revised degree plan. The revised degree plan will also appear in the Music Student Handbook to be available to music students in early fall 2011.

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

First Term

<table>
<thead>
<tr>
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<th>Course Name</th>
<th>Hours</th>
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<td>Mus 252</td>
<td>Mus Private Lessons</td>
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<tr>
<td>Mus 352</td>
<td>Mus Private Lessons</td>
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<tr>
<td>Mus 441</td>
<td>Mus Private Lessons</td>
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<tr>
<td>Mus 498</td>
<td>Secondary Instrument</td>
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<tr>
<td>Mus 492</td>
<td>Electives</td>
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Second Term

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<tr>
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<td>Mus 1822</td>
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<td>Mus 441</td>
<td>Mus Private Lessons</td>
<td>4</td>
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<tr>
<td>Mus 181</td>
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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

First Term

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<tr>
<th>Course Code</th>
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<tr>
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<td>Mus 252</td>
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<td>Mus 352</td>
<td>Mus Private Lessons</td>
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<td>Mus 441</td>
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<td>1</td>
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<tr>
<td>Mus 498</td>
<td>Complete Writing Portfolio</td>
<td>2</td>
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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.
Mus Private Lessons 4
Mus Ensemble
Mus 465
Foreign Language 4
Arts & Humanities [H,G] or
Social Sciences [S,K] (GER) 4
Mus 481
Mus 483
Mus Ensemble
Mus Private Lessons
GenEd 111 [A] (GER) 3
Mus 351
Mus 352
Mus 371
Mus Ensemble
Mus Private Lessons

Second Year

First Term

Hours
Communication Proficiency [C,W] (GER) 3
GenEd 111 [A] (GER) 3
Mus 351 3
Mus 352 1
Mus 371 2
Mus Ensemble 1
Mus Private Lessons 4

Second Term

Math Proficiency [N] (GER) 3
Mus 281 0 or 1
Mus 353 3
Mus 354 1
Mus 359 3
Mus 372 2
Mus Ensemble 1
Mus Private Lessons 4


Third Year

First Term

Hours
Mus 360 [M] 3
Mus 428 1
Mus 491 2
Mus Private Lessons 4
Physical Sciences [P] (GER) 4
Social Science [S,K] (GER) 3

Second Term

Hours
Arts & Humanities [H,G] (GER) 3
Intercultural Studies [I,G,K] (GER) 3
Mus 361 [M] 3
Mus 428 1
Mus 453 4
Mus 481 4
Mus Private Lessons 4

Fourth Year

First Term

Hours
Biological Sciences [B] (GER) 4
Foreign Language 4
Mus 465 2
Mus Ensemble 1
Mus Private Lessons 4

Second Term

Hours
Arts & Humanities [H,G] or
Social Sciences [S,K] (GER) 3
Foreign Language 4
Mus 483 1
Mus Ensemble 1
Mus Private Lessons 4
Tier III Course [T] (GER) 3

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.

Description of Courses

MUSIC

Mus 102 Piano 2 (0-6) May be repeated for credit.
Mus 103 Voice 2 (0-6) May be repeated for credit.
Mus 151 Music Fundamentals 3 Notation and performance of music fundamentals: pitch, rhythm, scales, key signatures, and intervals.
Mus 153 [H] Musical Style in Composition 3 Introduction to musical style in composition, history, and analysis including theory fundamentals, history survey, and beginning composition.
Mus 160 [H] Survey of Music Literature 3 Exploration of predominantly western music through demonstrations, performances, lectures, concerts, and discussions.
Mus 163 [G] World Music 3 Exploration of music from a global perspective through demonstrations, performances, lectures and discussion.
Mus 164 Introduction to Music Technology 1 Prereq Mus 151; Mus 251 or c/. Music notation software, audio recording and editing, and music specific web design.

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.
7 Mus 360 and 361 fulfill the College of Liberal Arts [H,G,S,K,I] requirement.
8 Courses are taught alternate years.
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.


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) or 4(0-12) May be repeated for credit.

302 Piano 2(0-6) or 4(0-12) May be repeated for credit.

303 Voice 2(0-6) or 4(0-12) May be repeated for credit. Prereq c// in Mus 431, 432, or by interview only.

304 French Horn 2(0-6) or 4(0-12) May be repeated for credit.

305 Trumpet 2(0-6) or 4(0-12) May be repeated for credit.

306 Trombone 2(0-6) or 4(0-12) May be repeated for credit.

307 Baritone 2(0-6) or 4(0-12) May be repeated for credit.

308 Tuba 2(0-6) or 4(0-12) May be repeated for credit.

309 Percussion 2(0-6) or 4(0-12) May be repeated for credit.

310 Violin 2(0-6) or 4(0-12) May be repeated for credit.

311 Viola 2(0-6) or 4(0-12) May be repeated for credit.

312 Violoncello 2(0-6) or 4(0-12) May be repeated for credit.

313 Contrabass 2(0-6) or 4(0-12) May be repeated for credit.

314 Flute 2(0-6) or 4(0-12) May be repeated for credit.

315 Oboe 2(0-6) or 4(0-12) May be repeated for credit.

316 Clarinet 2(0-6) or 4(0-12) May be repeated for credit.

317 Bassoon 2(0-6) or 4(0-12) May be repeated for credit.

318 Saxophone 2(0-6) or 4(0-12) May be repeated for credit.

319 Secondary Performance Study 2 (0-4) May be repeated for credit; cumulative maximum 16 hours. Prereq certified music major. Instruction on instruments or voice other than major performing medium.

351 Materials and Structures of Music III 3 Prereq C or better in Mus 253 and 254. Voice leading and analysis of functional chromatic harmony; study of common large forms in the 17th, 18th, and 19th century.

352 Applied Theory III 1 (0-3) Prereq Prereq C or better in Mus 164, 253, and 254. Introduction to functional chromatic ear training, sight singing, applied theory, keyboard performance and dictation.

353 Materials and Structures of Music IV 3 Prereq C or better in Mus 351 and 352. Vertical, linear and formal relationships of 20th century music; writing, analysis, listening.

354 Applied Theory IV 1 (0-3) Prereq C or better in Mus 351 and 352. Continued development in functional chromatic ear training, sight singing, keyboard performance and dictation; introduction to performing 20th century music.

359 [M] History of Music: Antiquity to 1650 3 Mus 251; Mus 252; Eng 101. Development and change in the musical culture from antiquity to 1650.

360 [M] History of Music: 1650 - 1850 3 Prereq Mus 251; Mus 252; Mus 359; Eng 101. Development and change in musical culture from 1650 to 1850.

361 [M] History of Music: 1850 - Present 3 Prereq Mus 251; Mus 252; Mus 359; Eng 101. Development and change in musical culture from 1850 to the present.

362 [H,D] History of Jazz 3 History of jazz in chronological sequence; social and political contexts of the African-American origins of jazz; stylistic developments.


364 Introduction to Sound Recording Technology 3 Music, audio and recording technology throughout history and its influence on society and culture.

371 Diction for Singers I 2 Italian and English; International Phonetic Alphabet; fundamental diction principles, applied to each language and oriented to needs of the singer.

372 Diction for Singers II 2 Prereq Mus 371. French and German; International Phonetic Alphabet; fundamental diction principles, applied to each language and oriented to needs of the singer.

388 Music for the Classroom Teacher 2 For elementary education majors. Prereq Mus 153 or satisfactory score on music fundamentals test administered by music faculty; admission to Teacher Certification Program. Singing, movement, listening and instrumental methods/resources for K-8 grades.

401 Organ 2(0-6) or 4(0-12) May be repeated for credit.

402 Piano 2(0-6) or 4(0-12) May be repeated for credit.

403 Voice 2(0-6) or 4(0-12) May be repeated for credit. Prereq c// in Mus 431, 432, or by interview only.

404 French Horn 2(0-6) or 4(0-12) May be repeated for credit.

405 Trumpet 2(0-6) or 4(0-12) May be repeated for credit.

406 Trombone 2(0-6) or 4(0-12) May be repeated for credit.

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415 Oboe 2(0-6) or 4(0-12) May be repeated for credit.

416 Clarinet 2(0-6) or 4(0-12) May be repeated for credit.

417 Bassoon 2(0-6) or 4(0-12) May be repeated for credit.

418 Saxophone V 2 (0-6) to 4 (0-12) May be repeated for credit.

428 Opera Workshop 1 (0-4) May be repeated for credit. By audition only. Public performance may be required. Credit not granted for both Mus 428 and 528.

431 Concert Choir 1 (0-4) May be repeated for credit. By audition only. Public performances each semester. Credit not granted for both Mus 431 and 531.

432 University Singers 1 (0-4) May be repeated for credit. Public performance may be required.

433 Vocal Ensembles 1 (0-4) May be repeated for credit. By audition only. Public performance may be required. Credit not granted for both Mus 433 and 533.

434 Symphony Orchestra 1 (0-4) May be repeated for credit. By audition only. By audition only. Orchestral literature and public performance each semester. Credit not granted for both Mus 434 and 534.

435 Chamber Ensembles 1 (0-4) May be repeated for credit. By audition only. Public performance may be required. Credit not granted for both Mus 435 and 535.

436 Symphonic Band 1 (0-4) May be repeated for credit. By audition only. Public performances each semester. Credit not granted for both Mus 437 and 537.

438 Jazz-Lab Band 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Public performances each semester. Credit not granted for both Mus 438 and 538.
439 Vocal Jazz Ensemble 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Public performances each semester. Credit not granted for both Mus 439 and 539.

440 Jazz Combos 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Public performances each semester. Credit not granted for both Mus 440 and 540.

441 Accompanying 1 (0-4) May be repeated for credit. By audition only. Credit not granted for both Mus 441 and 541.

444 Marching Band/Varsity Band 1 (0-4) May be repeated for credit. By audition only.

451 Seminar in Counterpoint 2 May be repeated for credit; cumulative maximum 4 hours. Prereq Mus 351 or c/. Contrapuntal techniques of the 16th and 18th century with original stylistic writing.

452 Electronic Music 2 (1-3) Prereq Mus 353 or c/. Introduction to computer-controlled digital, analog, and sampling synthesis; topics include sequencing, waveform editing, and creative projects.

455 Seminar in Instrumentation 2 May be repeated for credit. Prereq Mus 351 or c/. Scoring for various instrumental combinations.

456 Seminar in Advanced Composition 4 May be repeated for credit. Prereq Mus 256 and permission of the instructor. Original writing in small and large forms (traditional and experimental).

457 Seminar in Jazz Arranging/Composition 2 Prereq Mus 257. Arranging and composing for instrumental jazz ensembles.

458 Advanced Jazz Improvisation 2 May be repeated for credit; cumulative maximum 4 hours. Prereq Mus 258. Advanced concepts in jazz improvisation.

459 Seminar in Advanced Jazz Composition V 1 (0-2) to 3 (0-6) May be repeated for credit; cumulative maximum 12 hours. Prereq Mus 457 or permission. Creation of works for Jazz Ensembles. Credit not granted for both Mus 459 and 559.

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.

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.

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.

482 Instrumental Conducting 1 (0-3) Techniques and patterns in conducting as applied to orchestra and band literature; score preparation and rehearsal techniques for instrumental ensembles.

483 Choral Conducting 1 (0-3) Techniques and patterns in conducting as applied to choral literature; score preparation and rehearsal techniques for choral 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) 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 3 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) 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. Credit not granted for both MUS 496 and 596.

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 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.

501 Organ 2(0-6) or 4(0-12) May be repeated for credit.

502 Piano 2(0-6) or 4(0-12) May be repeated for credit.

503 Voice 2(0-6) or 4(0-12) May be repeated for credit. Prereq c/ in Mus 431, 432, or by interview only.

504 French Horn 2(0-6) or 4(0-12) May be repeated for credit.

505 Trumpet 2(0-6) or 4(0-12) May be repeated for credit.

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517 Bassoon 2(0-6) or 4(0-12) May be repeated for credit.

518 Saxophone 2(0-6) or 4(0-12) May be repeated for credit.

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) May be repeated for credit; cumulative maximum 8 hours. By audition only. Graduate-level counterpart of Mus 428; additional requirements. Credit not granted for both Mus 428 and 528.

531 Concert Choir 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Graduate-level counterpart of Mus 431; additional requirements. Credit not granted for both Mus 431 and 531.

533 Vocal Ensembles 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Graduate-level counterpart of Mus 433; additional requirements. Credit not granted for both Mus 433 and 533.
9 Seminar in Major Ensemble Literature 2 May be repeated for credit; cumulative maximum 6 hours. Ensemble literature for symphony orchestra, choral or jazz ensembles.

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 3 Graduate counterpart of Mus 480; additional requirements. Credit not granted for both Mus 480 and 580.

586 Seminar in Piano Pedagogy 2 Prereq Mus 562 or c-/. Materials and methods of teaching experiences.

588 Choral Methods and Materials I 2 (0-6) Prereq senior or graduate standing. Graduate-level counterpart of Mus 488; additional requirements. Credit not granted for both 488 and 588.

589 Choral Methods and Materials II 2 Prereq Mus 588. Graduate-level counterpart of Mus 489; additional requirements. Credit not granted for both Mus 489 and 589.

590 General Music/Materials/Methods 3 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 (1-2) Prereq graduate standing. Graduate-level counterpart of Mus 491; additional requirements. Credit not granted for both Mus 491 and 591.

596 Topics in Music V 1-3 May be repeated for credit; cumulative maximum 6 hours. Permission of the program coordinator. Graduate counterpart of MUS 496; additional requirements. Credit not granted for both MUS 496 and 596.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master's Special Projects, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

**Department of Natural Resource Sciences**

natural-resources.wsu.edu

Johnson Hall 115

509-335-6166


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 Resource Sciences 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. Wildlife Ecology is represented in the department, plus contributing 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 working 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 rangeland ecology and wildlife available to all students, plus a general natural resource minor available to non-natural resource majors.

The student chapter of The Wildlife Society provides 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 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; and the Kramer/Palouse Natural Area; provide students with knowledge and training 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 either Wildlife Ecology or Natural Resources. All majors share a set 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.

**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. 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 curriculum 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). 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/both 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.
### 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 advisers 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.

#### First Year

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<th>Term</th>
<th>Course</th>
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<tr>
<td>First Term</td>
<td>Biol 106 [B] (GER)</td>
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<td>NATRS 301</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.

#### First Year

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<td>Biol 107 [B] (GER)</td>
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<td>Chem 101 or 105 [P] (GER)</td>
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<td>NATRS 435</td>
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¹ Students in consultation with their advisors select 3 to 4 hours for the approved electives in social science and in ecology and 15-23 hours of course work for the option requirement. To facilitate selection of option courses the department/advisors have developed course lists. Each option must contain at least 9 credits of 300-400 level course work.

### WILDLIFE ECOLOGY - PRE-VETERINARY OPTION (127 HOURS)

#### First Year

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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.

In addition to the option courses each student is required to chose two animal systematics courses from: Biol 412, 423, 428, 432, or Entom 343.

² Restricted Math electives include: Math 140, 171, 202, and Stat 212. Math 140 is the preferred elective.
Fourth Year

First Term
Animal Systematics Elective 1 3-4
NATRS 450 [M] 3
Electives 6

Hours

Second Term
Animal Systematics Elective 2 4
NATRS 431 3
NATRS 438 3
NATRS 441 4
NATRS 470 2

Description of Courses

NATURAL RESOURCE SCIENCES

NATRS

100 Introduction to Natural Resource Management 1 Prereq instructor approval.
Nature and significance of natural resources; types of renewable natural resource systems; goals and principles of natural resource management.

204 Introduction to Measurements and Computers in Natural Resources 2 (1-3)
Prereq Math 107, 140, 171, 202 or equivalent, or instructor's permission. Introduction to basic concepts, field techniques and the use of spreadsheets in natural resources. Field trips 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.

310 Methods in Wildlife Ecology 4 (3-3) Prereq Biol 106; Biol 107; NATRS 204. Field and laboratory sampling techniques in wildlife research and management.

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.

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.

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.

320 Forest Engineering and Harvesting 3 Prereq NATRS 204. Survey of logging equipment capabilities; intro to cable logging systems, road layout, and design; cost analysis of logging systems; development of road and logging plans. Three days of field trips. (Fall only). Cooperative course taught by UI, open to WSU students (FORP 430).

321 Wood Anatomy and Identification 3 (2-2) Prereq Biol 107. Physiology of woody plants, anatomy and nomenclature of wood, physical and chemical nature of wood, identification of commercial wood species. Two lec and 2-hr lab a wk. (Fall only). Cooperative course taught by UI, open to WSU students (FORP 277).

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).

419 Topics in Natural Resource Sciences V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 9 hours. 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 water and cold water systems. One 1-day field trip. Cooperative course taught by UI, open to WSU students (FISH 422).

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).

432 Low-volume Forest Roads 3 Prereq NATRS 320. Road classification; design of forest roads; construction techniques; costing, environmental considerations, design project. Three days of field trips. Cooperative course taught by UI, open to WSU students (FORPR 432).

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.

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.

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.

446 [M] Wildlife Habitat Ecology 3 Prereq Biol 372 or NATRS 300; NATRS 310; Stat 212. The ecology of how wildlife use, respond to, and affect resources in their environment.

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.

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.

479 Natural Resource Management Internship V 2 (0-6) to 12 (0-36) May be repeated for credit; cumulative maximum 12 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 May be repeated for credit; cumulative maximum 6 hours. Prereq senior in natural resource sciences.

515 Large River Fisheries 2 Management issues and problems in large river fisheries in North America and globally; importance of flood plains; ecological bases for management actions in large rivers; river fisheries in the context of multiple use of large rivers.

519 Advanced Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.

524 Plant Ecophysiology 3 Prereq course in general ecology or botany. Functional responses and adaptations of individual plant species to their environment, emphasizing morphological and physiological mechanisms that influence plant establishment, the physical environment, below- and above-ground productivity, and plant interactions such as competition, herbivory, and allelopathy. (Fall only). Cooperative course taught by UI, open to WSU students (REM 560).

542 Wildlife Habitat Ecology V 2-3 Reading and discussion on habitat concepts, analyses, and applications. Students enrolled in 3 credits will complete additional readings and quantitative problem sets. Cooperative course taught by UI, open to WSU students (WLF 545).

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 for better land management. (Spring, Alt/odd yrs). Cooperative course taught by UI, open to WSU students (REM 551).

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 (RANGE 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 (RANGE 556).

564 Landscape Ecology 3 (2-3) Graduate-level counterpart of NATRS 464; additional requirements. Credit not granted for both NATRS 464 and 564.

594 Environmental and Natural Resources Issues and Ethics 3 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.

700 Master's Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Program in Natural Science

www.navy.uidaho.edu
Navy Building, University of Idaho
208-885-6333
Professor of Naval Science, Captain Eaton, Commander Roeth Milit, Captain Hennessy, Lieutenant Alvarado, Lieutenant Nance, Lieutenant Smith.

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 (N S 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 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 allot 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 allots course between 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

N S 100 Drill Lab 1 (0-3) Required of all Navy-Marine Corps Officer Education Program students. Two hour lab per week. Cooperative course taught by UI, open to WSU students (NS 100). S, P grading.

101 Introduction to Naval Science 2 Intro to the Navy: customs, structure, basic leadership, career paths, and ships and aircraft of the U.S. Fleet. (Fall only). Cooperative course taught by UI, open to WSU students (NS 101).

102 Ships Systems I 3 Intro to Naval shipboard engineering systems; propulsion systems; nuclear, gas turbine, and conventional; auxiliary systems and shipboard damage control; basic concepts in ship design. (Fall only). Cooperative course taught by UI, open to WSU students (NS 102).

201 Ships Systems II 3 Naval weapons systems; theory and process of detection (radar and sonar), evaluation; weapons; delivery, guidance, and explosives; integration of weapons systems with command, control, and communications systems. (Spring only). Cooperative course taught by UI, open to WSU students (NS 201).

202 Seapower and Maritime Affairs 3 US Survey of U.S. Naval history; seapower and maritime affairs emphasizing present-day concerns; comparisons of U.S. and foreign Naval strategies. (Spring only). Cooperative course taught by UI, open to WSU students (NS 202).

299 Directed Study V 1-2 May be repeated for credit; cumulative maximum 12 hours. By interview only. Cooperative course taught by UI, open to WSU students (NS 299).

301 Navigation 3 Theory, principles, and procedures of terrestrial and electronic navigation, and “rules of the nautical road.” (Spring only). Cooperative course taught by UI, open to WSU students (NS 301).

302 Naval Operations 3 Prereq N S 301. Naval operations and tactics, relative motion, and Maneuvering Boards. (Fall only). Cooperative course taught by UI, open to WSU students (NS 302).

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, open to WSU students (NS 311).

401 Naval Leadership and Management 3 Theories of management and management resources, motivational theories and leadership. Cooperative course taught by UI, open to WSU students (NS 401).

402 Leadership and Ethics 3 Rec N S 401. Leadership and Ethics: An intellectual exploration of Western moral traditions and ethical philosophy within a military context. Topics will include military leadership, core values, professional ethics, and conduct of warfare with applications appropriate for future Navy and Marine Corps officers. (Spring only). Cooperative course taught by UI, open to WSU students (NS 402).

412 Amphibious Operations 3 Rec N S 311. Amphibious doctrine from Gallipoli to Mayquez. (Fall only). Cooperative course taught by UI, open to WSU students (NS 412).

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, open to WSU students (NS 499).

421 Intermediate Leadership 2 By interview only. Practical application of leadership and management techniques through the department head level. Cooperative course taught by UI, open to WSU students (NS 499).

422 Advanced Leadership 3 By interview only. Practical application of leadership and management techniques through the executive and commanding officer level. Cooperative course taught by UI, open to WSU students (NS 499).

499 Directed Study V 1 (0-3) to 4 (0-12) May be repeated for credit. By interview only. Cooperative course taught by UI, open to WSU students (NS 499). S, P grading.

Program in Neuroscience

www.vetmed.wsu.edu/neuroscience/ Wegner 205 509-335-0986


Neuroscience, the study of the brain and peripheral nervous system, is a multidisciplinary program that sponsors Bachelor of Science, Master of Science, and Doctor of Philosophy degrees, as well as a minor at the undergraduate level. Neuroscience seeks to answer questions that range from molecular and cellular details of neuronal function, to sensory processing and behavior, to the highest levels of human cognition. Findings in this field have
provided important insights on both human and animal behavior and health. Discoveries by Washington State University neuroscientists have advanced the understanding of how brain chemicals and nerves function to control behavior and how disturbances in the function of the brain can lead to poor health. Of specific interest in our program are the areas of emotion, eating, sleeping, addiction, remembering, and sensing.

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 undergraduate 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. Specific student learning outcomes for neuroscience majors include:

- **Breadth and Depth of Discipline – Demonstrate knowledge in one or more core neuroscience areas.**
- **Communication – Communicate effectively, both orally and in writing.**
- **Information Literacy – Effectively (thoroughly) search, evaluate, and cite the appropriate neuroscience literature.**
- **Quantitative and Symbolic Reasoning – Apply appropriate quantitative tools to data.**
- **Thinking Critically and Creatively – Implement the “scientific method.”**
- **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 work toward the doctor of veterinary medicine degree in the following four years. The first three years are a combination of WSU Honors College courses and regular university undergraduate courses that fulfill the pre-veterinary and Neuroscience major 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**

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.

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 are admitted directly to the Ph.D. program from either a masters or bachelors degree from an accredited higher education institution. Applicants for admission to the Graduate Program in Neuroscience must have a minimum grade point average 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 completed courses in inorganic and organic chemistry, biochemistry, 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 (subject tests are not required), 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, a statement by the applicant that describes career goals and research interests, a writing sample, and a résumé; sum résumé; or curriculum vitae (CV). 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 priority 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 April 15. Students may still apply for admission after December, but graduate stipends may not be available for late applicants.

**Pre-Admit PhD Program in Neuroscience**

Early admission to the Graduate Program in Neuroscience is intended for the academically exceptional WSU undergraduate neuroscience major who intends to pursue a career in neuroscience research. A student nominated for the pre-admit program will have an outstanding record of academic achievement and will have exhibited an aptitude and strong motivation for original research in neuroscience. This program will provide incentives for the best and brightest students in the Undergraduate Program in Neuroscience to remain at WSU for their graduate work. See a neuroscience academic advisor for additional 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.**

**NEUROSCIENCE - COMPUTATIONAL (BREADTH OF FIELD 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 Bio 106, Biol 107, Chem 105, Chem 106, Math 171, Math 172, and Phys 201.

**First Year**

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<tr>
<th>Schedule</th>
<th>Hours</th>
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<tbody>
<tr>
<td><strong>First Term</strong></td>
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<tr>
<td>Chem 105 [P] (GER)</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>
<td>3</td>
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<tr>
<td>Math 171 [N] (GER)</td>
<td>4</td>
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<tr>
<td>Psych 105 [S] (GER)</td>
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<tr>
<td><strong>Second Term</strong></td>
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<tr>
<td>Biol 106 [BI] (GER)</td>
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<tr>
<td>Chem 106 [P] (GER)</td>
<td>4</td>
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<tr>
<td>Cpt 5 121</td>
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<tr>
<td>Math 172</td>
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### Second Year

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<tr>
<th>Term</th>
<th>Courses</th>
<th>Hours</th>
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<tr>
<td><strong>First Term</strong></td>
<td>Chem 345&lt;br&gt;GenEd 111 [A] (GER) Mate 220&lt;br&gt;Mate 273&lt;br&gt;Neuro 301&lt;br&gt;Phil 201 [H] (GER)&lt;sup&gt;1&lt;/sup&gt;</td>
<td>4</td>
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<tr>
<td><strong>Second Term</strong></td>
<td>Biol 107 [B] (GER)&lt;sup&gt;1&lt;/sup&gt;&lt;br&gt;Cpt S 122&lt;br&gt;Engl 402 [C,W] (GER)&lt;br&gt;MBioS 303&lt;sup&gt;1&lt;/sup&gt;</td>
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**Total Hours for Second Year: 16**

### Third Year

**First Term**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER)<br>EE 261/262<br>Neuro 495<br>Program Electives (consult advisor)<br>Tier III Course [T] (GER)<br>
- BE 340<br>Chem 106 [P] (GER)<br>Chem 105 [P] (GER)<br>Cpt S 121<br>Math 172<br>GenEd 111 [A] (GER)<br>Kinesiology 106 [J] (GER)<br>Program Electives (consult advisor)<br>

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<tr>
<th>Term</th>
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<tr>
<td><strong>First Term</strong></td>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)&lt;br&gt;EE 261/262&lt;br&gt;Neuro 495&lt;br&gt;Program Electives (consult advisor)&lt;br&gt;Tier III Course [T] (GER)&lt;br&gt;</td>
<td>3</td>
</tr>
<tr>
<td><strong>Second Term</strong></td>
<td>Biol 107 [B] (GER)&lt;sup&gt;1&lt;/sup&gt;&lt;br&gt;Cpt S 122&lt;br&gt;Engl 402 [C,W] (GER)&lt;br&gt;MBioS 303&lt;sup&gt;1&lt;/sup&gt;</td>
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</table>

**Total Hours for Third Year: 16**

### Fourth Year

**First Term**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER)<br>EE 234<br>EE 261<br>EE 262<br>Neuro 495 or 499<br>Program Electives (consult advisor)<br>
- Biol 353<br>Chem 106 [P] (GER)<br>Cpt S 121<br>Math 172<br>GenEd 110 [A] (GER)<br>

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<th>Term</th>
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<tr>
<td><strong>First Term</strong></td>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)&lt;br&gt;EE 234&lt;br&gt;EE 261&lt;br&gt;EE 262&lt;br&gt;Neuro 495 or 499&lt;br&gt;Program Electives (consult advisor)&lt;br&gt;</td>
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<td><strong>Second Term</strong></td>
<td>Biol 353&lt;br&gt;Chem 106 [P] (GER)&lt;br&gt;Cpt S 121&lt;br&gt;Math 172&lt;br&gt;GenEd 110 [A] (GER)&lt;br&gt;</td>
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**Total Hours for Fourth Year: 16**

### 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, Math 172, and Phys 201.

**First Year**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER)<br>EE 234<br>EE 261<br>EE 262<br>Neuro 495 or 499<br>Program Electives (consult advisor)<br>
- Biol 106 [B] (GER)<sup>1</sup><br>Cpt 223<br>Intercultural Studies [I,G,K] (GER)<br>Pscy 201 [S] (GER)<br>Psych 490<br>

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<th>Term</th>
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<tr>
<td><strong>First Term</strong></td>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)&lt;br&gt;EE 234&lt;br&gt;EE 261&lt;br&gt;EE 262&lt;br&gt;Neuro 495 or 499&lt;br&gt;Program Electives (consult advisor)&lt;br&gt;</td>
<td>3</td>
</tr>
<tr>
<td><strong>Second Term</strong></td>
<td>Biol 106 [B] (GER)&lt;sup&gt;1&lt;/sup&gt;&lt;br&gt;Cpt 223&lt;br&gt;Intercultural Studies [I,G,K] (GER)&lt;br&gt;Pscy 201 [S] (GER)&lt;br&gt;Psych 490&lt;br&gt;</td>
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**Total Hours for First Year: 12**

### Neuroscience - General Option (120 Hours)

Students may certify in general neuroscience (including premed and prevet) after completing the 345-346 year-long sequence. Recommended for medical, dental, or optometry school.

**First Term**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER)<br>Pscy 105 [S] (GER)<br>

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<th>Term</th>
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<td><strong>First Term</strong></td>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)&lt;br&gt;Pscy 105 [S] (GER)&lt;br&gt;</td>
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**Total Hours for First Year: 3**

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<sup>1</sup> Satisfied course requirements for entrance into medical or veterinary school

<sup>2</sup> Prereq Chem 345, Neuro 301 and MBioS 303

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**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**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER)<br>EE 234<br>EE 261<br>EE 262<br>Neuro 495 or 499<br>Program Electives (consult advisor)<br>
- Biol 106 [B] (GER)<sup>1</sup><br>Cpt 223<br>Intercultural Studies [I,G,K] (GER)<br>Pscy 201 [S] (GER)<br>Psych 490<br>

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<td><strong>Second Term</strong></td>
<td>Biol 106 [B] (GER)&lt;sup&gt;1&lt;/sup&gt;&lt;br&gt;Cpt 223&lt;br&gt;Intercultural Studies [I,G,K] (GER)&lt;br&gt;Pscy 201 [S] (GER)&lt;br&gt;Psych 490&lt;br&gt;</td>
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</table>

**Total Hours for First Year: 12**

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<sup>1</sup> Satisfied course requirements for entrance into medical or veterinary school

<sup>2</sup> Prereq Chem 345, Neuro 301 and MBioS 303
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

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<td>Engl 101 [W] (GER)</td>
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Second Term

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Second Year

First Term

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<td>Communication Proficiency [C,W] (GER)</td>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>Neuro 301</td>
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<td>Phys 101 [P] or 201 [P] (GER)</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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Third Year

First Term

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<tr>
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<td>Biol 438, Psych 384, or 390</td>
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Second Term

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<tr>
<td>MBioS 303</td>
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<td>Neuro 403 [M]</td>
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Fourth Year

First Term

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Second Term

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Part of the 345-346 year-long sequence. Recommended for medical, dental, or optometry school.

Part of the 345-346 year-long sequence. Recommended for medical, dental, or optometry school.

Minors

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

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Third Year

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Second Term

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Third Year

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Fourth Year

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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.
Description of Courses

NEUROSCIENCE

**Neuro**

- **138 Neuroscience Seminar** 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.

- **275 Special Topics: Study Abroad V** 1-15 May be repeated for credit; cumulative maximum 100 hours. 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; certified Neuro major or minor or instructor's permission. 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.

- **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.

- **425 Special Topics in Neural Regulation of Physiological Systems** 3 Prereq Neuro 301, Psych 372. Neural regulation of systems physiology examined at the system, cellular, and molecular levels.

- **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.

- **450 Honors Thesis Research V** 1-3 Prereq certified honors student in neuroscience. Laboratory research with emphasis on honors thesis or project directed by faculty.

- **461 Neurobiology** 3 Prereq Phys 101; Chem 345 recommended. Study of the nervous system, with an emphasis on the basic mechanisms of neuronal signaling, the function of sensory systems, and neural development. Cooperative course taught by UI, open to WSU students (BIOL 461).

- **480 Special Topics: Study Abroad V** 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

- **490 Senior Project** 1 Prereq senior standing; certified neuroscience major; may be taken c//. S, F grading.

- **495 Directed Research V** 1-3 May be repeated for credit; cumulative maximum 100 hours. Prereq certified Neuro major or minor. Introduction to neuroscience research literature.

- **499 Special Problems V** 1 (0-3) to 3 (0-3) May be repeated for credit; cumulative maximum 6 hours. Prereq certified neuroscience major or minor. Introduction to neuroscience laboratory research. S, F grading.

- **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 (NEUR 520).

- **521 Introduction to Veterinary Neurology** 3 (2-3) Prereq V M 510P. Same as V M 521P.

- **526 Domestic and Exotic Animal Behavior** 2 (1-3) Prereq by interview only. Same as V M 526P.

- **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 (BIOL 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 May be repeated for credit; cumulative maximum 6 hours. 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 May be repeated for credit; cumulative maximum 6 hours. 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 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Concepts and controversies in neuroscience that involve normal and pathological aspects of behavior.

- **561 Biological Signal Processing** 3 Introduction to computational neuroscience. Neurons and neuron models, basic signaling mechanisms of neurons, networks of neurons, models, learning model algorithms, weight-based memory models. The Hodgkin-Huxley model. A principal emphasis in this course is the development of quantitative models and analysis of neural systems. A term project is required. Recommended preparation: introductory course in linear algebra. Familiarity with at least one programming language. (Spring, alt/ys). Cooperative course taught by UI, open to WSU students (NEUR 521).

- **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. S, F grading.

- **600 Special Projects or Independent Study V** 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

- **700 Master's Research, Thesis, and/or Examination V** 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

- **800 Doctoral Research, Dissertation, and/or Examination V** 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.
College of Nursing

www.nursing.wsu.edu
Spokane
509-324-7337


BACCALAUREATE PROGRAM

The College of Nursing was established as the Intercolligate Center for Nursing Education on July 1, 1968 and exists as a joint endeavor of Washington State University, Eastern Washington University, and Whitworth University. Its cooperative undergraduate program was 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 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 nationally accredited by the Commission on Collegiate Nursing Education. 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 campus, 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 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 wellness; (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 study for the student with no previous preparation in nursing and registered nurses. The curriculum is four academic years. Provision is made for part-time matriculation for students who plan to obtain their 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 (nurse practitioner programs), (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 or verbal interview, depending on program track, is required for all applicants.

Students apply to the Graduate School in Pullman. Program. Information, determination of student interests and goals, and assignment of a faculty advisor are provided by the Graduate Program office at the College of Nursing.

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.

PHD IN NURSING PROGRAM

The PhD in Nursing Program began in summer 2007, and admits up to 10 students each summer. Required course work is delivered over 7 semesters in a combination of approaches – face-to-face in Spokane, videostream, and online learning. The student presents a dissertation research proposal to meet requirements for the preliminary examination, and completes an independent research study. The program prepares students to advance the discipline of nursing science through a research-focused program emphasizing innovative approaches and leveraging resources to improve health care. Graduates are equipped to become leaders in nursing education and research, critical roles in today's health care environment.

Applicants are required to have (1) a masters degree in nursing or health related field, (2) a GPA of 3.5 or higher in the masters program, (3) completion of a graduate level statistics course, (4) satisfactory statement of goals and match of research interests to college faculty, (5) submission
of a scholarly work and vita/resume, (6) 3 letters of reference, and (7) a successful interview. A successful TOEFL examination is required with those for whom English is not a primary language.

Students apply to the Graduate School in Pullman Program. Information, determination of student interests and goals, and assignment of a faculty advisor are provided by the Graduate Program office at the College of Nursing.

We expect graduates of the PhD in Nursing program to: (1) Contribute to advancing nursing science and practice through clinical research; (2) analyze, construct, and test theoretical frameworks that guide nursing research design, methodology, data analyses, and the transfer of new knowledge into practice; (3) create effective interdisciplinary collaborations to foster research and the transfer of evidence-based knowledge into best clinical practices; (4) synthesize knowledge from a variety of disciplines to create research designs and methods for nursing science and to address ethical, social, cultural, political, and professional issues; (5) implement proven and emerging technologies to enhance nursing research and education; and (6) implement innovative research designs, methodologies, leadership skills, health education, and/or life style modification techniques to address the health care needs of vulnerable populations and disparities in the access to or delivery of health care.

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 (124 HOURS)

Sixty 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.

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NURSING - REGISTERED NURSES OPTION


Description of Courses

NURSING

Nurs 308 Professional Development I: Evidence Based Practice 3 Prereq admission to nursing program or by permission. First of professional development series; focus on nursing and health care research, information management, informatics, and development of nursing research.

309 Professional Development II: Ethical Reasoning and Decision Making Processes in Nursing 3 Prereq Nurs 308; c// Nurs 315. Continuation of professional development series; moral/ethical reasoning models, decision processes, and philosophical basis of nursing as a discipline.

311 Pathophysiology and Pharmacology in Nursing 4 Prereq admission to nursing. Etiology, pathogenesis, clinical manifestations of common human dysfunction; nursing implications for prevention and therapeutic approaches including pharmacologic and non-pharmacologic therapies.

315 Nursing Practice: Health and Illness 4 (0-12) Prereq Nurs 308, 311, 315, 316, 317, or c//. Introduction to nursing practice and health assessment: professional values, core competencies, core knowledge and role development. S, F grading.

316 Introduction to Nursing Practice in Health and Illness: Theory 2 Prereq Nurs 308, 311, 317 or c//. Introduction to nursing concepts and holistic assessment including core professional values, knowledge and competencies for nursing practice.

317 Health Assessment 3 (2-2) Prereq Nurs 308, 311, 316 or c//. Systematic approach to health assessment of adults emphasizing and incorporating use of nursing process and scientific rationale.

318 Growth and Development Across the Life Span 3 Prereq admission to nursing or by permission. Theoretical and conceptual perspectives on human growth and development across the life span.

322 The Human Experience of Diversity and Health 2 Prereq admission to nursing or by permission. Explorations of regional, national, and global expressions of health and illness and implications for health care professionals.

323 Nursing in the Genome Era 2 Prereq Nurs 308, 311, 316, and 317. Genome science and application of genetic and genomic concepts to nursing care.

324 Nursing Concepts in Acute and Chronic Illness in the Adult 4 Prereq Nurs 311, 315, 316, 317. Theoretical concepts of acute and chronic illness in the adult as a basis for critical thinking and decision-making in nursing.

325 Nursing Practice in Acute and Chronic Illness in Adults 5 (0-15) Prereq Nurs 311, 315, 316, 317; c// Nurs 324. Application of acute/chronic illness concepts in adults as a basis for critical thinking and decision-making in nursing.

328 Introduction to Gerontological Nursing 2 Prereq c// Nurs 318. Professional values, communication, and functional assessment in care of elders; core knowledge and role development of the gerontological nurse.

360 Professional Nursing Concepts and Issues 2 Prereq certified in nursing or RN. Philosophical, historical, economic, legal/ethical, and professional issues designed for registered nurses to build upon previously acquired professional concepts.
365 Nursing Concepts: Assessment and Application of Physiological Concepts to Nursing Practice I 3 Prereq certified nursing assistant; registered nurse. Integration of pathophysiologic, assessment, pharmacological nursing concepts with diverse client populations; emphasizing neurological, EENT, skin, musculoskeletal, endocrine, and respiratory systems.

366 Nursing Concepts: Assessment and Application of Physiological Concepts to Nursing Practice II 3 Prereq certified nursing assistant; registered nurse. Integration of pathophysiologic, assessment, pharmacological nursing concepts with diverse client populations; emphasizing fluid/electrolytes, oncology, GI/GU; cardiovascular; immune system, renal.

392 Therapeutic Touch: A Nursing Modality of Caring and Healing 3 (2-3) Prereq completion of one semester of nursing or by permission. Explores the broad arena of touch as a means of interpersonal communication and as a mechanism for healing using Krieger-Kunz method.

398 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 hours.

400 Nursing Research and Informatics 3 Prereq enrolled in WSU College of Nursing; registered nurse. Application of informatics skills and research processes to clinical practice; incorporates first level informatics concepts.

405 Nursing Leadership 2 Prereq certified nursing assistant; registered nurse. Application of group leadership and management theories to professional nursing practice.

406 Nursing Management 3 Prereq enrolled in WSU College of Nursing; registered nurse. Management, leadership, and group theories are utilized and applied to the management of nursing and health care.

408 Professional Development III: Leadership and Management 3 Prereq Nurs 309. Continuation of professional development series; focus on impact of leadership, management, and resource allocation on patient outcomes.

409 Professional Development IV: Transition to Practice 2 Prereq Nurs 408; Nurs 414; Nurs 415; Nurs 416; Nurs 417. Continuation of professional development series; focus on transition to practice and nursing across health care systems/delivery within global arena.

412 Family and Community as a Context of Care 1 (0-2) Prereq Nurs 324, 325, and 328. Concepts of family-focused nursing assessment, planning, and interventions with emphasis on referral to appropriate community resources.

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 2 (0-6) 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, 415, 416. Nursing care of 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 disruptions. 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.

455 Cultural Safety and Social Justice in Global Society 3 Prereq junior standing; currently enrolled in the RNB program. Balance of power in health professional relationships, cultural safety, social justice, and diversity in global society.

456 Narrative Health Care in Clinical Practice 3 Prereq Nurs 315, Nurs 316. Narrative processes of attention, representation, and affiliation experienced by health professional students in clinical encounters.

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 V 2-3 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 3 (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.

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 dysrhythmias management guidelines.

492 Essentials of Disaster Management for Nurses 3 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 (0-3) to 4 (0-12) 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 3 Prereq Nurs 503 or c/. Research process as foundational to both conduct of scientific inquiry and utilization of findings.

505 Nursing Practice Inquiry V 1 (0-3) to 4 (0-12) Prereq Nurs 539, 565 and 576. Analysis and development of a practice inquiry proposal based on a practice concern of interest to the student.

506 Nursing Practice Capstone V 1 (0-3) to 4 (0-12) Prereq Nurs 505, 539, 565 and 576. Translational research project including measurement of outcomes, analysis of results and the dissemination of recommendations for practice.

507 Health Care Policy Analysis V 2-3 Prereq graduate standing. Analysis of health care system policy; exploration of issues of clinical management and community resource utilization including advocacy techniques.

511 Rural and Cultural Competencies for Population Health 2 Prereq graduate standing in DNP. Rural, cultural and research competencies necessary for reducing health disparities to increase access to care for local and global populations.

512 Rural and Cultural Competencies for Population Health Practicum V 1-2 Prereq Nurs 511; graduate standing in DNP. Rural, cultural and research competencies necessary for reducing health disparities to increase access to care in the practice setting. S, F grading.

517 Quality Improvement and Program Evaluation 3 Prereq admission to the graduate program. Principal dimensions of healthcare quality management including quality measurement and continuous quality improvement.

518 Translating Evidence into Practice 3 Prereq graduate standing in DNP. Health related evidence and development of skills to apply evidence in advanced practice.

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 6 (3-9) 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.

525 Psychopharmacology 3 Prereq graduate standing in nursing. Clinical psychopharmacology across the lifespan including pharmacokinetics, pharmacodynamics, principles of prescribing, client education and outcome monitoring.

526 Analytical Foundations for Health Sciences 3 Prereq one statistics course. Quantitative methods, research and statistics in current health care literature.

527 Association, Group Difference and Regression Techniques for Health Services 3 Prereq graduate statistics course; graduate standing in nursing. Application of quantitative techniques to explore relationships and group differences among variables supporting questions in health science research.

528 Multivariate Statistical Techniques for Health Sciences 3 Prereq Nurs S27; graduate standing in nursing. Application of quantitative techniques to explore multivariate relationships among variables supporting questions in health science research.

529 Analytical Seminar for Health Science 3 Prereq Nurs S27; Nurs S28; admission to graduate nursing program. In-depth research methods used for health science research.

531 Culture, Populations, and Family Health Care 3 Diverse health beliefs and practices of clients, families, and members of the interdisciplinary health care team.

532 Resource Stewardship in Health Care 3 Prereq graduate standing in nursing. Theory, research and practice dimensions of resource stewardship to effectively manage human and material resources in the practice setting.

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.

539 Foundations of the DNP Role 2 Prereq Nurs 507, 512 and 518. Foundations of the DNP role emphasizing the integration of practice inquiry and advanced practice.

541 Advanced Family Psychiatric/Mental Health Practitioner: Child, Adult, and Geriatric Therapies 3 (3-3) Prereq graduate standing in nursing; Nurs 562; 581 or c/. Advanced study of theories of psychopathology and appropriate nursing interventions with individuals across the lifespan. Practicum emphasis: assessment, diagnosis, counseling.

543 Advanced Family Psychiatric Mental Health Nurse Practitioner: Group Psychotherapy Across the Lifespan 4 (3-3) Prereq Nurs 541; Nurs 581. Introduction to theory and practice of group and family psychotherapy through the life span; Milieu, Cognitive Behavioral, Interpersonal, other theories.

546 Practicum in Psychiatric/Mental Health Nursing V 4 (1-9) to 5 (1-12) Prereq Nurs 541, 543, 562, 581; PharP 525 or c/. Individualized clinical experience/seminar designed to provide advanced competency, accountability, leadership in psychiatric/mental health nursing.

548 Psychiatric Nurse Practitioner Internship V 1-9 May be repeated for credit; cumulative maximum 9 hours. Prereq Nurs 546, PharP525, by interview only. Application and integration of theory, research findings, and interventions in the primary care of clients with psychiatric disorders.

549 Advanced Family Psychiatric Mental Health Nurse Practitioner: Group Psychotherapy Across the Lifespan 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 (2-0) to 4 (2-4) Theoretical approaches to the analysis of normal and at-risk families; application of family assessment and intervention models when planning care.

553 Seminar in Interprofessional Collaboration 1 Prereq graduate standing in DNP or collaborating program. Leadership and collaboration efforts among professionals with clients and community partners.

554 Epidemiological Approaches to Community Health 3 Prereq graduate standing in Nurs. Epidemiologic application to health; implications for health promotion, disease prevention; focus: knowledge and skills required to obtain and use databases.
556 Community-Based/Population-Focused Role Practicum V 2 (1-3) 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.

561 Advanced Family Psychiatric Mental Health Nurse Practitioner: Advanced Assessment and Diagnosis 3 Prereq Admission to PMHNP program. Assessment and diagnosis of psychiatric illnesses; focus on physical and psychiatric history, mental status exam and strategies 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 Practice 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.

564 Health Promotion in Nursing Practice V 2-3 Prereq graduate standing in nursing. Theoretical bases including cultural variations for selected health promotion strategies for neonates through elderly clients.

565 Information Management for Clinical Practice 3 (2-3) Prereq computer competency in word processing/spreadsheets. Application/evaluation of nursing informatics; information systems to support clinical research, practice, administration, and education.

566 Community Analysis and and Grant Development 2 Prereq graduate standing in nursing. Application of core public health functions in community analysis, program development and program evaluation.

567 Primary Care of Families: Adults and Elders 4 (1-9) Prereq admission to FNP program; Nurs 562; Nurs 563; Nurs 581. Assessment, differential diagnosis, therapeutic intervention with adults; developmental changes; opportunities to provide diagnostic, maintenance, and follow-up care.

568 Primary Care of Families: Infants, Children and Adolescents 4 (1-9) Prereq admission to FNP program; Nurs 562; Nurs 563; Nurs 581. Assessment, differential diagnosis, and therapeutic intervention with infants, children, and adolescents in rural and urban settings.

569 Primary Care of Families: Family 4 (1-9) Prereq admission to FNP program; Nurs 562; Nurs 563; Nurs 581. Assessment, differential diagnosis, therapeutic intervention with individuals in childbearing, childrearing, and multigenerational families.

570 Clinical Decision Making 1 (0-3) Prereq Nurs 581, 562, 563; concurrent with first clinical course. Provides a framework for systematic collection, organization, interpretation, and communication of data for the development of differential diagnosis.

572 Nursing Science: Chronic Biobehavioral Nursing Outcomes 3 Prereq admission to graduate program. Concepts, theories and research relevant to preventing and managing chronic conditions across the lifespan.

574 Nursing Sciences: Acute Biobehavioral Nursing Outcomes 2 Prereq Nurs 536. Research methods, procedures and analysis of acute phenomena in nursing with a focus on vulnerable populations.

575 Diagnostic Testing and Interpretation 3 (2-3) Prereq admission to FNP program. Analysis of diagnostic findings across the age continuum for clinical decision making; selected diagnostic and treatment skills for advanced practice.

576 Organizational Leadership 3 Prereq graduate standing in nursing. Integration of leadership competencies and nursing practice for nurse leaders in a constantly changing health care environment.

577 Health Care Ethics V 2-3 Graduate-level counterpart of Nurs 477; additional requirements. Credit not granted for both Nurs 477 and 577.

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.

580 Practicum in Advanced Nursing Practice V 1 (0-15) Prereq Nurs, 539; c// Nurs 576. Integration and synthesis of practice inquiry; leadership and advanced practice to demonstrate competency in an area of advanced practice nursing. S, F grading.

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.

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 1 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.

594 Community-Based Care of At-Risk Adults and Marginalized Adult Populations 3 Prereq graduate standing in nursing. Analysis and evaluation of strategies, interventions and programs to promote health of at-risk adults, older adults and marginalized adult populations.

595 Internship V 1 (0-3) to 10 (0-30) 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.

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. May be repeated for credit; cumulative maximum 6 hours.

599 Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.
Program in Nutrition and Exercise Physiology, WSU Spokane

Professor and Director, K.E. Meier; Professor, J. Armstrong Shultz; Associate Professor, S.E. Blank; E.C. Johnson, M. Ballejos; Assistant Professor, S. Marsh; Clinical Assistant Professors, J. Beary, S. Kynast-Gales, L. Frank; Instructors, J. Knuth, M. Houghton, M. Clay, S. Fluegel, J. Troppman (adjunct), A. Atkins, M. McMulkin.

The Bachelor of Science in Nutrition and Exercise Physiology is a unique, interdisciplinary undergraduate degree in the health sciences that focuses on the effects of exercise and nutrition on the health of individuals. Supporting prerequisite coursework, detailed in the Program of Study (below), provides a broad knowledge base in human anatomy, physiology, nutrition, chemistry, biochemistry, and microbiology; however, the primary focus of the upper division major is on advanced exercise physiology and nutrition.

The degree offers an integrative curricular approach in which students gain a unique perspective on how and why the human body responds to various exercise and nutritional stimuli through didactic and experiential assessment of genetic, clinical, social/psychological, and environmental factors. Students gain experiential learning through laboratories, practicum, and a semester-long internship focusing on exercise physiology and nutrition. The curriculum for the B.S. in Nutrition and Exercise Physiology prepares students to meet the knowledge, skills, and abilities standards required for American College of Sports Medicine Clinical Exercise Specialist certification. The MS Coordinated Program in Dietetics, Nutrition, and Exercise Physiology (CPDNEP), is accredited by the Commission on Accreditation for Dietetics Education of the American Dietetic Association. Successful completion of this MS program prepares students to test for the Registered Dietitian (R.D.) credential.

At the completion of their undergraduate B.S. 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; demonstrate critical thinking skills gained throughout the Nutrition and Exercise Physiology 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.

Graduates will be prepared for successful and rewarding careers and job opportunities including: cardiac and pulmonary rehabilitation; clinical programs; 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 Certified Clinical Exercise Specialist credential. Students who complete the MS CPDNEP will be qualified to test for Registered Dietitian certification. In addition, graduates may seek admission to graduate programs in various disciplines, including exercise science or nutrition.

Nutrition and Exercise Physiology offers three graduate programs. The first, the MS CPDNEP, is a Coordinated Program in Dietetics with an exercise emphasis. The second, the MS in Nutrition and Exercise Physiology, offers both thesis and non-thesis tracks. The thesis track is designed for students wishing to complete a research project in the areas of nutrition and/or exercise physiology. The non-thesis track is designed for students wishing to complete additional professional training in the area of exercise physiology. The third, the PhD in Nutrition and Exercise Physiology, provides students with training opportunities in basic science, clinical science, or behavioral science research at the doctoral level. All of our degree programs contain integrated content in nutrition and exercise physiology.

The following Program of Study is recommended for undergraduate students who complete Years One and Two at WSU Pullman, and Years Three and Four at WSU Spokane, plus clinical hours that include an exercise internship. Students coming from colleges or universities other than WSU Pullman will need to contact the Academic Coordinator in the Program in Nutrition and Exercise Physiology to determine appropriate prerequisites.

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.**

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**BACHELOR OF SCIENCE IN NUTRITION AND EXERCISE PHYSIOLOGY (122 HOURS)**

**First Year**

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Minors

Coordinated Program in Dietetics

The minor in the Coordinated Program in Dietetics requires 29 hours and includes the following: ExMet 401, 437, 451 and 440. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Students applying for the minor must be certified majors in the BS Exercise Physiology and Metabolism program, and must have a minimum 3.00 cumulative gpa and a C or better in all courses within the BS ExMet curriculum. Upon successful completion of the BS Exercise Physiology and Metabolism degree and the CPD minor, students will be eligible to take the registration examination to become Registered Dietitians.

Description of Courses

EXERCISE SCIENCE

ExSci

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 Prereq ExSci 463, 476, 567. Development of knowledge and skills in clinical testing analysis, and exercise prescription for clinical populations. Cooperative course taught by UL, open to WSU students (PE 593).

589 Research Techniques V 2 (1-3) to 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 V 1-2 May be repeated for credit.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

NUTRITION AND EXERCISE PHYSIOLOGY

NEP

300 [M] Professional Preparation 2 Prereq junior standing certified nutrition and exercise physiology 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 MvSt 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.

362 Biomechanical Analysis 3 Prereq [N] GER math course; Biol 315 or MvSt 262. Applied sport, clinical and occupational biomechanics.

400 Macronutrient Metabolism 3 Prereq introductory nutrition; biochemistry. Digestion, absorption, and metabolism of carbohydrates, protein and fats, and their utilization for energy.

401 Community Supervised Practice 9 Prereq completion of all nutrition and exercise physiology 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 NEP 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 MBio 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 NEP 400; NEP 402; NEP 463. Pathophysiology of disease and implications for dietary and exercise interventions.

437 Diet Therapy 4 Prereq completion of all nutrition and exercise physiology requirements through the 4th year. Theoretical and practical base for diet modification and nutritional therapy in health and a variety of disease states.

440 Clinical Supervised Practice 11 Prereq completion of all nutrition and exercise physiology requirements through the 4th year. Professional supervised experience in clinical dietetics. Meets American Dietetic Association requirements for registration eligibility. S, F grading.

450 Management and Facilities 3 Prereq senior standing; nutrition and exercise physiology 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 (1-12) Prereq completion of all nutrition and exercise physiology 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 nutrition and exercise physiology. Physical activity relating to nutritional needs and dietary patterns from infancy through old age and including maternal nutrition.

463 Advanced Exercise Physiology 4 (3-3) Prereq Biol 251; Biol 315 or MvSt 262. Advanced undergraduate exercise physiology with emphasis on mechanisms regulating physiological responses to exercise across the life span.

465 [M] Nutrition and Exercise Assessment 3 (2-3) Prereq NEP 400; NEP 463; NEP 427. Field and laboratory techniques and tools required to properly assess nutritional and physiological parameters.

470 Sports Nutrition 3 Prereq introductory nutrition; biochemistry; NEP 463. 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 nutrition and exercise physiology 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.

476 Exercise Testing and Prescription 3 (2-3) Prereq NEP 463. Principles of exercise testing and prescription based on current practices in physical education, physiology, and rehabilitation.

478 Electrocardiography, Medications and Procedures 3 (2-3) Prereq NEP 435; NEP 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 NEP 300; NEP 435; NEP 465; NEP 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 NEP 463; NEP 478. Principles and applications of exercise and nutrition assessment/prescription and program management to cardiopulmonary and rehabilitation situations and populations.
**Pharmaceutical Science Graduate Program**

* Wegner Hall 305  
  509-335-2227

The mission of the graduate program in the Pharmaceutical Sciences is to produce graduates for teaching, research, and clinical careers in academia, industry, health care, and other public and private institutions dedicated to the promotion of human health and wellness. We utilize multi-disciplinary and translational research approaches to (1) understand mechanisms of disease, (2) identify novel therapeutic targets, (3) develop and optimize pharmaceutical treatment approaches, and (4) promote the prevention and management of chronic diseases. Pharmacology, pharmacotherapeutics, toxicology, bio-pharmaceutics bioengineering, pharmacoeconomics and pharmacoepidemiology are emphasized. We strive to prepare students to become independent and creative problem solvers who will develop into leaders in their respective fields.

Students entering the program should have completed undergraduate work in biology, chemistry (including organic chemistry and biochemistry), mathematics (through calculus), an upper division level organ/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 PharmSc courses in the first year. Students working toward the PhD in Pharmaceutical Science are expected to develop an area of emphasis that is consistent with the research capabilities and interests of the faculty.

Applications for admission to the program must include: Official GRE scores, official transcripts for all collegiate 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), 250 (computer-based TOEFL), or 100 (Internet based TOEFL) are required. Inquiries should be emailed to drhowe@wsu.edu

**Description of Courses**

**PHARMACEUTICAL SCIENCES**

**PharS**

502 Faculty Research in Pharmacology/Toxicology 1 Introduction to faculty research for incoming graduate students. S, F grading.

505 Principles and Methods of Toxicology 3 Prereq MBioS 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 MBioS 513 or c/. Mechanisms of drug action and the 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.


511 Topics in Toxicology V 1-4 May be repeated for credit; cumulative maximum 12 hours. Prereq by interview only. Topics of current interest in toxicology and closely related areas. Cooperative course taught by WSU, open to UI students (VS 511).

512 Topics in Pharmacology V 1-4 May be repeated for credit; cumulative maximum 12 hours. Prereq by interview only. Topics of current interest in pharmacology and closely related disciplines. Cooperative course taught by WSU, open to UI students (VS 512).

555 General and Cellular Physiology 4 (3-3) Prereq cell physiology or genetics course. Same as V Ph 555.

572 Fundamentals of Oncology 3 Prereq MBioS 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 565).

573 Principles of Pharmacokinetics and Toxicokinetics 3 Pharmacokinetic, pharmacodynamic, and toxicokinetic systems; mathematical model development utilizing common kinetic systems.

574 Advanced Pharmacokinetics and Pharmacodynamics 4 Standard model development techniques to complex pharmacokinetic, pharmacokinetic-pharmacodynamic systems; advanced data analysis techniques to recover intrinsic kinetic and dynamic parameters.

575 Receptor-Ligand Interactions 3 Interactions of drugs with biological macromolecules constituting the physicochemical basis of drug action.
576 Biophysical Methods
3 Biophysical methods separating or detecting analytes based on their physical interactions with a support matrix or energy.

597 Pharmacology and Toxicology Seminar
1 May be repeated for credit; cumulative maximum 12 hours. Cooperative course taught by WSU, open to UI students (VS 597). S, F grading.

600 Special Projects or Independent Study
V 1 (0-3) to 18 (0-54) May be repeated for credit; cumulative maximum 100 hours. S, F grading.

700 Master’s Research, Thesis, and/or Examination
V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination
V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

College of Pharmacy

www.pharmacy.wsu.edu
Wagner 105
509-335-5901

COLLEGE OF PHARMACY Dean and Professor, G. Pollack; Associate Dean and Professor G. G. Meadows; Associate Dean and Associate Professor L. G. MacLean; Associate Dean and Clinical Associate Professor, C. A. Elstad; Associate Dean and Professor, D. E. Baker; Assistant Dean and Associate Professor, M. W. Garrison. DEPARTMENT OF PHARMACEUTICAL SCIENCES Professor and Chair, R. M. Quock; Professors, G. G. Meadows, K. E. Meier; Associate Professors, S. S. Daoud, N. M. Davies; Assistant Professors, D. W. Koh, G Poon, G. Trobridge; Clinical Associate Professors, S. L. Chambers-Fox, C. A. Elstad. DEPARTMENT OF PHARMACOTHERAPY Professor and Chair J. R. White; Professors, D. E. Baker, R. K. Campbell, L. J. Cohen, W. E. Fassett, D. A. Schar, T. L. Skaer, J. R. White; Associate Professors, M. M. Ahern, M. W. Garrison, S. M. Setter; Assistant Professor, J. E. Neumiller; Clinical Associate Professors, B. J. Gates, L. G. MacLean, C. M. Terriff; Clinical Assistant Professors, B. Bray, J. L. Ittz, B. Kelly, T. L. Levin, A. Maldonado, G. Matsaura, J. K. Reynolds, J. Robinison, C. R. Schwartz, T.E. Sonnett, M. Willson, L. Woodard.

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 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 1st to January 1st. Although a bachelor's degree is not required for admission, pre-requisites for admission require three 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 Services at 509-335-2356.

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 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

Written Communication I – 3 credits
Written Communication II – 3 credits
Philosophy – Logic, Critical Thinking or Ethics – 3 credits
Microeconomics – EconS 101 – 3 credits
Introductory Psychology – Psych 105 – 3 credits
Calculus – Math 140 or 171 or 202 – 4 credits
Statistics – Stat 212 – 3 credits
Introductory Biology – Bio 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
Genetics or Molecular Genetics – Bio 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 (135 HOURS)

First Year

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### Description of Courses

#### PHARMACY

**PharD**

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#### Fourth Year

**First Term Hours**

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**Second Term Hours**

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1 Elective Courses: four credits of electives are mandatory throughout the first three years of the curriculum. Students are required to take two elective credits during the first two years of the program and two elective credits during the third year of the program. Select from: PharD 499, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, and 599.

2 Advanced Pharmacy Practice Experiences (APPE) courses are: PharD 581, 582, 583, 584, 585, 586, 587.
Medication Error Prevention 1 Prereq PharD 514, 534, 544, 554. Professional presentation/communication skills in pharmacy; focus on public speaking in various formats.

Professional Communications and Integrated Colloquium 1 Prereq admission to the PharD program. Transplant pharmacy providing understanding of medical research applied to transplant and other areas of practice.

Advanced Topics in Immunology/Transplantation 1 Prereq admission to the PharD program. Advanced practice experience in various health care settings.


Community Advanced Practice Experience 5 (0-15) Prereq PharD didactic coursework completed. Advanced practice experience in a community pharmacy setting.


Elective I Advanced Practice Experience 5 (0-15) Prereq PharD didactic coursework completed. Advanced practice experience in acute or ambulatory patient care settings.

Elective II Advanced Practice Experience 5 (0-15) Prereq PharD didactic coursework completed. Advanced practice experience in acute, ambulatory, or non-traditional patient care.


Special Topics 2 Contemporary issues in pharmacy.

Are We Poisoning our Parents? 1 Prereq completion of second year of PharD program. Causes and perils of an overmedicated society through discussion and avocation of safe and responsible use of drugs in older adults.

Advanced Topics in Infectious Disease 1 Prereq PharD 544. Advanced knowledge of infectious disease topics covered in therapeutic PharD coursework.

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.

Medical Devices for Home Health Care 2 Prereq third 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.

Advanced Topics in Behavioral Health-Mental Health in the Media 1 Prereq PharD 544. Advanced knowledge of behavioral health topics covered in Therapeutics PharD 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.

Comprehensive Diabetes Management 3 Prereq current PharD 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.


Entrepreneurship in Pharmacy 1 Prereq S, F grading.


Elementary Science Education Practicum 1 Prereq third year PharD student. Entrepreneurship and innovative pharmacy business plan development. S, F grading.

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.

Pharmacy Sciences

Pharmacy

Pharmacokinetics 3 Prereq PharD 504, 508; c// PharSc 518. Laboratory experience in the preparation of medicines.

Pharmacogenomics 3 Prereq PharD 504, 508; c// PharSc 518. Qualitative and quantitative understanding of the processes of drug absorption, distribution, and elimination.

Integrated Pharmacology III 4 Prereq PharD 502, 512. Immunopharmacology (including immunizations), chemotherapeutics (antibiotics, antivirals, and anti-cancer drugs), and endocrine pharmacology.


Department of Philosophy

libarts.wsu.edu/philo
Bryan Hall 316
509-335-8611

Associate Professor and Department Chair, D. L. Shier; Professors, J. K. Campbell, M. W. Myers; Assistant Professors, A. Bunch, W. Kabasenche, M. Stichter; Professors Emeriti, D. M. Holbrook, H. S. Silverstein.

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), the
Master of Arts in Philosophy, and the Graduate
Certificate in Bioethics.

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.

PHILOSOPHY - PRE-LAW OPTION
(120 HOURS)

No course with a grade of D+ or less and no course
taken pass/fail will be counted toward the major.
The overall gpa for courses in the major must be
at least 2.00.

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

1 One Phil elective must be [M] if two have not been
taken.

PHILOSOPHY - TRADITIONAL OPTION
(120 HOURS)

No course with a grade of D+ or less and no course
taken pass/fail will be counted toward the major.
The overall gpa for courses in the major must be
at least 2.00.

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 101 [H] or 103 [H] (GER) 3

Second Term Hours
Communication Proficiency [C,W] (GER) 3
GenEd 111 [A] (GER) 3
Phil 201 [H] (GER) 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 320 [H] (GER) 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 321 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 370 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
400-level [M] Course 3
Phil Electives 6
Electives 6

Second Term Hours
Phil Electives 6
Electives 9

Electives 12

Minors

Ethics

The minor in ethics consists of 18 credit hours, of
which at least 15 must be from ethics courses within
the department of philosophy, such as Phil 260,
360, 365, 370, 460, 462, 470, and 472. Three credit
hours may, with approval of the department of
philosophy, be from an ethics course in the student's
major or in another department. Nine of the 18
hours must, in accordance with university policies,
be in upper-division course work taken in residence
at WSU or through WSU-approved education abroad
or educational exchange courses.

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

Phil

101 [H] Introduction to Philosophy 3 Nature
and place of philosophy in human thought;
problems and achievements.

103 [H] Introduction to Ethics 3 Ethics through
analysis of contemporary moral and social
issues.
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.

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 221).

280 [G] Philosophy and Religion of Islam 3 Philosophical and religious framework of Islam. Cooperative course taught by WSU, open to UI students (PHIL 280).

314 [G,M] Philosophies and Religions of India 3 Metaphysical, epistemological, ethical, aesthetic, social, and political views of Hinduism, Buddhism, and Islam, and their influence on Indian civilization. Cooperative course taught by WSU, open to UI students (PHIL 314).

320 [G,M] Philosophies and Religions of China and Japan 3 The philosophies and religions of China and Japan, and their metaphysical, epistemological, ethical, social, and political positions and views of God and gods. Cooperative course taught by WSU, open to UI students (PHIL 316).

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).

350 [H] Philosophy of Science 3 Purpose and logical structure of science; human implications. Cooperative course taught jointly by WSU and UI (PHIL 412).

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. May be repeated for credit; cumulative maximum 6 hours.

401 Advanced Logic 3 Prereq Phil 201. First-order predicate logic plus some metatheory, applications and/or extensions. Credit not granted for both Phil 401 and 501. Cooperative course taught jointly by WSU and UI (PHIL 409).

406 Philosophy and Race 3 Prereq 3 hours in Phil or CES 201. Same as CES 406. Cooperative course taught by UI, open to WSU students (PHIL 406).

407 Seminar in Philosophy of Religion 3 May be repeated for credit; cumulative maximum 6 hours. 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 413).

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 philosophy of ideas. Credit not granted for both Phil 421 and 521. 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.

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] 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. Credit not granted for both Phil 443 and 543. 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. Credit not granted for both Phil 451 and 551. Cooperative course taught by UI, open to WSU students (PHIL 451).

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 414).

462 [M] Women and Ethics 3 Prereq Phil 101 or W St 402. 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. Credit not granted for both Phil 470 and 570. 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).

499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. 5, 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 jointly by WSU and UI (PHIL 501).

504 Special Topics in Philosophy 3 May be repeated for credit; cumulative maximum 6 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 Graduate-level counterpart of Phil 407; additional requirements. Credit not granted for both Phil 407 and 507. Cooperative course taught by WSU, open to UI students (PHIL 513).

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 jointly by WSU and UI (PHIL 520).

522 Seminar in Metaphysics 3 Prereq graduate standing. The nature of reality, through study of key concepts such as God, personhood, free will, causation, space, time, and identity. Cooperative course taught jointly by WSU and UI (PHIL 522).

524 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 524).

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).

540 Ethics and Social Science Research 3 Prereq graduate standing. Professional ethics for social science research, ethical conduct of research, obligations to human subjects and ethical implications of methods and technologies.

543 Philosophy of Language 3 Graduate-level counterpart of Phil 443, additional requirements. Credit not granted for both Phil 443 and 543. Cooperative course taught jointly by WSU and UI (PHIL 443).

551 Philosophy of Biology 3 Graduate-level counterpart of Phil 451; additional requirements. Credit not granted for both Phil 451 and 551. 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, open to WSU students (PHIL 552).

556 Religion and Environment 3 Concepts of the sacred, the human nature and their interrelationships with religious traditions and how they relate to ecology and environmental ethics. Cooperative course taught by UI, open to WSU students (PHIL 556).

570 Philosophy of Law 3 Graduate-level counterpart of Phil 470, additional requirements. Credit not granted for both Phil 470 and 570. Cooperative course taught jointly by WSU and UI (PHIL 410).

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, open to WSU students (PHIL 571).

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Physical Education Activity

PEB 101 509-335-1309

Description of Courses

PE-ACTIVITY

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 1 (1-1) S, F grading.
102 Beginning Conditioning ROTC 1 (1-1) A, S, F grading.
107 Beginning Judo 1 (1-1) A, S, F grading.
108 Karate 1 (1-1) A, S, F grading.
112 Weight Training 1 (1-1) S, F grading.
114 Beginning Gym Tumbling 1 (1-1) A, S, F grading.
119 Aerobic Dance 1 (1-1) S, F grading.
120 American Social Dance Men 1 (1-1) A, S, F grading.
121 American Social Dance Women 1 (1-1) A, S, F grading.
126 Beginning Mod Dance 1 (1-1) A, S, F grading.
127 Beginning Jazz Dance 1 (1-1) A, S, F grading.
128 Beginning Swimming 1 (1-1) A, S, F grading.
131 Scuba Diving 2 (1-3) A, S, F grading.
132 Conditioning Swimming 1 (1-1) S, F grading.
133 Water Aerobics 1 (1-1) S, F grading.
140 Jogging 1 (1-1) S, F grading.
141 Beginning Golf 1 (1-1) A, S, F grading.
143 Beginning Bowling 1 (1-1) A, S, F grading.
145 Beginning Fencing Men 1 (1-1) A, S, F grading.
146 Beginning Fencing Women 1 (1-1) A, S, F grading.
150 Beginning Tennis 1 (1-1) A, S, F grading.
154 Beginning Racquetball 1 (1-1) A, S, F grading.
158 Beginning Volleyball 1 (1-1) A, S, F grading.
164 Beginning Soccer 1 (1-1) A, S, F grading.
177 Intermediate Racquetball 1 (1-1) A, S, F grading.
200 Special Topics 1 (1-1) May be repeated for credit; cumulative maximum 4 hours. A, S, F grading.
201 Intermediate Conditioning ROTC 1 (1-1) A, S, F grading.
208 Intermediate Karate 1 (1-1) A, S, F grading.
220 Advanced Social Dance Men 1 (1-1) A, S, F grading.
221 Advanced Social Dance Women 1 (1-1) A, S, F grading.
242 Advanced Golf 1 (1-1) A, S, F grading.
250 Intermediate Tennis 1 (1-1) A, S, F grading.
251 Advanced Tennis 1 (1-1) A, S, F grading.
258 Intermediate Volleyball 1 (1-1) A, S, F grading.
265 Advanced Soccer 1 (1-1) A, S, F grading.
266 Fly Fishing 1 (1-1) A, S, F grading.

Department of Physics and Astronomy

www.physics.wsu.edu
Webster 1248
509-335-9532

Interim Chair and Associate Professor, S. Rose; Regents Professors, J. T. Dickinson, Y. M. Gupta, M. G. Kazyk; Professors, G. S. Collins, K. G. Lynn, P. L. Marston, M.D. McCluskey, M. D. Miller, S. L. Tomsovic; Associate Professors, D. Blume, S. L. Dexeheimer, P. Engels, G. Worthey; Assistant Professors, M. Duez, Y. Gu, C. Zhang; Clinical Associate Professor, F. Gittes; Senior Instructor, M. Allen, Instructor, 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 not only for further study in physics but also for advanced study in biophysics, medicine, astrophysics, geophysics, chemical physics, engineering, meteorology, and computer science. All of these areas also offer potential careers for the physics major.

Courses offered 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, biological 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; nanoscale physics and materials, Bose-Einstein condensates, 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 offers courses of study leading to 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. Instruction in astronomy is enhanced by the use of a 12-inch refractor at the Jewett Observatory, a Spitz planetarium, and faculty research at LIGO gravitational-wave observatory. Opportunities are available for students to collaborate with faculty to do research projects.

The Department of Physics and Astronomy 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 and Astronomy 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.

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. 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 the physics faculty 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.

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
First Term | Hours
--- | ---
Chem 105 [P] (GER) or 115 | 4
Degree program course, if necessary1 | 3 or 4
Engl 101 [W] (GER) | 3
GenEd 110 [A] or 111 [A] (GER) | 3
Math 171 [N] (GER) | 4
Phys 188 | 1
Second Term | Hours
Chem 106 [P] (GER) or 116 | 4
Degree program course, if necessary1 | 3 or 4
GenEd 110 [A] or 111 [A] (GER) | 3
Math 172 | 4
Phys 201 or 205 | 4 or 5

Second Year
First Term | Hours
Arts & Humanities [H,G] (GER) | 3
Biological Sciences [B] (GER) | 4
Degree program course, if necessary1 | 3 or 4
Math 220 | 2
Math 273 | 2
Phys 202 or 206 | 4 or 5
Second Term | Hours
Cpt S 121 | 4
Degree program course, if necessary1 | 3 or 4
Math 315 | 3
Phys 303 | 3
Phys 330 | 3
Social Sciences [S,K] (GER) | 3
Complete Writing Portfolio

1 Environmental: ES/RP 101; Physics Education: Psych 105 [S] (GER) ComSt 102 [C] (GER); Computational Physics: Cpt S 121, 122.

Minors
Astronomy
The program in astronomy offers a 19-hour minor in astronomy consisting of Astr 345, 435, 436, at least two hours from Astr 390, 490, or 499, and at least 3 hours from Geol 103, Astr 135, or Hist 381. The minor also requires Math 273 and Phys 303. These courses have as prerequisites Math 220, 171, 172 and Phys 201, 202. These prerequisites are often required as part of physical science major programs (Chemistry, Computer Science, Engineering, Geology, and Physics) so that students in these fields will find the astronomy minor more accessible than students in other fields. 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.
Physics

A physics minor requires Phys 201, 202, 303, and 304 plus any two courses (6 credits) from the following list: Phys 320, 330, 341, 342, 410, 412, 415, 443, 450, 461, 463, 465. This makes a total of 20 credits in Phys of which 12 are upper-division. 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. Students from outside the College of Sciences (i.e., College of Engineering) do not have to meet the extra graduation requirements of the College of Sciences.

Description of Courses

ASTRONOMY

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.


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.


450 [T] Life in the Universe 3 Prereq GER mathematics [N]; junior standing; rec completion of physical sciences [P] and biology [B] GERs. The natural history of life on earth and prospects for life elsewhere; includes chemistry, biology, geology, physics and astronomy.

581 Advanced Topics 3 May be repeated for credit; cumulative maximum 12 hours. Same as Phys 581.

PHYSICS

Phys

101 [P] General Physics I 4 (3-3) Prereq Math 107 or 108 with a grade of C or better, or math placement into calculus, or passing Math 140, 171, 202, or 206. Algebra/trigonometry-based physics; mechanics, wave phenomena, temperature, and heat; oriented toward non-physical science majors. Credit not granted for more than one of Phys 101, 201, or 205.

102 [P] General Physics II 4 (3-3) Prereq Phys 101 with a grade of C or better; Math 107 or 108 with a grade of C or better, or math placement into calculus, or passing Math 140, 171, 202, or 206. Algebra/trigonometry-based physics; topics in electricity, magnetism, optical phenomena, relativity, and quantum theory; oriented toward non-physical science majors. Credit not granted for more than one of Phys 102, 202, or 206.

103 Problem Solving for Physics 101 1 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.

104 Problem Solving for Physics 102 1 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.

150 [Q] Physics and Your World 3 (2-2) Survey of physics as found in everyday phenomena; including many hands-on activities and home experiments. Field trips required.

188 Freshman Seminar I 1 Faculty will present current research interests and opportunities in physics; questions and discussion. Taught annually each fall. S, F grading.

201 [P] Physics for Scientists and Engineers I 4 (3-3) 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. Credit not granted for more than one of Phys 101, 201, or 205.

202 [P] Physics for Scientists and Engineers II 4 (3-3) 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 motion and dynamics of particles and rigid bodies, vibrations, wave phenomena, and the laws of thermodynamics. Credit not granted for more than one of Phys 102, 202, or 206.

203 Problem Solving for Physics 201 1 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.


205 [P] Physics for Scientists and Engineers I - Honors 5 (3-5) Prereq Math 171. Calculus-based physics, honors section; mechanics, sound, and thermodynamics. Credit not granted for more than one of Phys 101, 201, or 205.

206 [P] Physics for Scientists and Engineers II - Honors 5 (3-5) Prereq Math 172; Phys 201 or 205. Calculus-based physics, honors section; electricity, magnetism, light, topics in modern physics. Credit not granted for more than one of Phys 102, 202, or 206.

303 Modern Physics I 3 Prereq Math 220 or c//; Phys 202. Quantum and relativity theories with applications to atomic, solid state, nuclear and elementary particle physics.


320 Mechanics 3 Prereq Math 315 or c//; Phys 102 or 202. Particle motion in one-, two-, and three-dimensional systems of particles; rigid body motion; Lagrange's equations.

330 Thermal Physics 3 Prereq Math 273; Phys 202. Thermal behavior of systems; energy and entropy; equations of state; changes of phase; elements of continuum and statistical approaches.

341 Electricity and Magnetism I 3 Prereq Math 315 or c//; Phys 202. Electrostatic fields, magnetic fields, dielectric and magnetic media.


380 [P] Physics and Society 3 Interactions of physics with society; energy; air and water pollution; recycling; communications and computers; physics and war; physics and art.

410 Electronics 3 (1-6) Prereq Phys 102 or 202. Laboratory construction and investigation of electronic circuits employed in research instruments.


443 Optics 3 Prereq Phys 341 or c//. Polarization, interference, coherence, and diffraction phenomena of the electromagnetic spectrum; optics of solids; laser resonators; gaussian beams; ABCD matrices.

450 Introduction to Quantum Mechanics 3 Prereq Math 315; Phys 303. Introduction to quantum theory with applications to atomic physics. Cooperative course taught jointly by WSU and UI (PHYS 450).

461 Introduction to Atomic and Molecular Physics 3 Prereq Phys 304. Introduction to atomic and molecular physics; spectroscopy.
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 550).

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 551).

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 552).


560 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.

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 V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Department of Plant Pathology

plantpath.wsu.edu
Johnson Hall 345
509-335-9541


Department of Plant Pathology

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 Agricultural and Food Systems (Agriculture and Food Security major) or Integrated Plant Sciences curricula. For more information on these baccalaureate degrees,
The courses offered in this department are designed both to train students expecting to make plant pathology 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 botany, chemistry, genetics, microbiology, physics, and zoology.

A professional career in plant pathology would benefit from graduate training. Students often enter the graduate program 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, disease resistance, chemical control, and biological control. Research is conducted on diseases of grain crops, forage corps, forest trees, tree fruits, grapes, vegetables, ornamentals, and turf.

The department offers Master of Science in Plant Pathology, and Doctor of Philosophy in Plant Pathology and contributes to the degrees of Bachelor of Science in Agricultural and Food Systems and Bachelor of Science in Integrated Plant Sciences.

Preparation for Graduate Study

As preparation for work toward an advanced degree, a student should have completed a bachelor's degree; at least one semester each of general inorganic chemistry, botany, zoology, physics; one semester each of systematic botany, plant physiology, general plant pathology, entomology, microbiology, precalculus, organic chemistry, genetics, and report writing or advanced composition.

Description of Courses

PLANT PATHOLOGY

PI P

150 [Q] Molds, Mildews, Mushrooms: The Fifth Kingdom S A mycological 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.

403 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 Viruses and Virus Diseases of Plants 4 (3-3) Prereq course in biochemistry or advanced genetics. Nature of plant viruses, vector-virus relationships and virus diseases of plants. Cooperative course taught jointly by WSU and UI (PLSC 511).

513 Plant Nematology 4 (3-3) Anatomy and morphology of plant-parasitic nematodes, molecular plant-nematode interactions, genomics, symptoms, identification, techniques and control. Cooperative course taught by WSU, open to UI students (PLSC 513).

514 Phytopathology 4 (3-3) Prereq MBioS 303; MBioS 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 to UI students (PLSC 514).

515 Seminar 1 May be repeated for credit.

521 General Mycology 4 (2-6) Graduate standing. The structure, life histories, classification, and economic importance of the fungi. Cooperative course taught by WSU, open to UI students (PLSC 521).

525 Field Plant Pathology and Mycology V I (0-3) to 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 (2-6) 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.

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).

551 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 506).

700 Master's Research, Thesis, and/or Examination V I (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V I (0-3) to 18 (0-54) 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.

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525 Field Plant Pathology and Mycology V I (0-3) to 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 (2-6) 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.

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).

551 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 506).

700 Master's Research, Thesis, and/or Examination V I (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V I (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Department of Political Science

www.libarts.wsu.edu/polisci

Johnson Twr 801
509-335-2544

Associate Professor and Chair, S. Stehr; Professors, W. Budd, C. Clayton, M. Cottam, N. Lovrich, A. Mazur, D. Nice, T. Preston; Associate Professors, A. Appleton, C. Long, M. Pickerill, T. Ridout, M. Stephenson, P. Therioux; Assistant Professors, D. Baker, C. Fairley, A. Luedtke, C. Metelits, M. Weidenfeld.

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 phenomena 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 a 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 towards the departmental requirements.

First Year

First Term

<table>
<thead>
<tr>
<th>Course</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>English 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Pol S 101 [S] (GER)</td>
<td>3</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
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Second Term

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G], Intercultural Studies</td>
<td>3</td>
</tr>
<tr>
<td>Communication Proficiency [C,W] (GER)</td>
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Second Year

First Term

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<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>Foreign Language, if necessary, or Elective</td>
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<tr>
<td>Math Proficiency [N] (GER)</td>
<td>3</td>
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<tr>
<td>Pol S 103 [S] (GER)</td>
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<tr>
<td>Science Elective (GER)</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], Intercultural Studies</td>
<td>3</td>
</tr>
<tr>
<td>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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<td>Pol S Electives</td>
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Third Year

First Term

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<thead>
<tr>
<th>Course</th>
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<tr>
<td>300-400-level Arts &amp; Humanities or Social Sciences Elective</td>
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<tr>
<td>300-400-level Pol S Elective [M]</td>
<td>3</td>
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<tr>
<td>Physical [P] Sciences (GER)</td>
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<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>
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<tr>
<td>300-400-level Pol S Elective [M]</td>
<td>3</td>
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<tr>
<td>Cpt S or Stat Elective</td>
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<tr>
<td>English 201 [W], 301 [W], or 402 [W] (GER)</td>
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<td>Pol S Elective</td>
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Fourth Year

First 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>
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<td>300-400-level Electives</td>
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<td>300-400-level Pol S Elective</td>
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<td>Electives</td>
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Second Term

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<th>Course</th>
<th>Hours</th>
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<tr>
<td>300-400-level Arts &amp; Humanities or Social Sciences Elective</td>
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<tr>
<td>300-400-level Electives</td>
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<td>300-400-level Pol S Elective</td>
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<tr>
<td>Tier III Course [T] (GER)</td>
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Fourth Year

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<th>Course</th>
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<tbody>
<tr>
<td>MINOR FIELD ELECTIVE (300-400 LEVEL)</td>
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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

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<th>Course</th>
<th>Hours</th>
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<tr>
<td>English 101 [W] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Math Proficiency [N] (GER)</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>Arts &amp; Humanities [H,G], Intercultural Studies</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
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POLITICAL SCIENCE - PRE-LAW OPTION (120 HOURS)

24 hours in Pol S required. 21 of the 24 required hours of course work must be earned at WSU.
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>Engl 101 [W] (GER)</td>
<td>3</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>Pol S 101</td>
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<td>Science Elective (GER)</td>
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<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>Biological Sciences [B] (GER)</td>
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<td>Econ S 101 [S] or Econ S 102[S] (GER)</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<td>Pol S 102</td>
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Second Year

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<td>First Term</td>
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<tr>
<td>Crm J 101</td>
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<td>Phil 201</td>
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<td>Physical Sciences [P] (GER)</td>
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<td>Pol S 103</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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<td>Engl 201 or 501 [W] (GER)</td>
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<td>Pol S [M] Course Elective</td>
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<td>Pol S 300</td>
<td>3</td>
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<tr>
<td>Public Speaking or Argumentation Elective</td>
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<tr>
<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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<tbody>
<tr>
<td>First 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>
<td>Crm J 320 or 420</td>
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<td>Pol S 402</td>
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<td>Electives</td>
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<td>Second 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>Pol S 404 [M] (GER)</td>
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<td>Electives</td>
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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>
<td>Intercultural Studies [I,G,K] (GER)</td>
<td>3</td>
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<tr>
<td>Pol S 443</td>
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<td>Electives</td>
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<tr>
<td>Tier III Course [T] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
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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

Pol S

101 [S] American National Government
- 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
- Nature of the state; fundamental problems of government and politics; ideological and institutional comparison of democracies and dictatorships.

103 [S] International Politics
- Creation and operation of national, international, and supranational communities; major world problems since 1945.

206 State and Local Government
- Institutions, processes, and problems, with special reference to the state of Washington.

276 Special Topics: Study Abroad
- V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

277 Special Topics: Study Abroad
- V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

300 The American Constitution
- Prereq Pol S 101. Constitutional principles as established by the Supreme Court and related political developments.

301 Political Simulations
- May be repeated for credit; cumulative maximum 9 hours. Prereq Pol S 101. Preparation for and participation in political simulations.

305 [S] Gender and Politics
- Role of gender in political behavior; voting and political participation; women as subjects and objects of political systems.

314 National States and Global Challenges
- Comprehensive introduction to the processes of the economic and political integration of the European Union.

316 American Public Policy
- Institutions, processes, and substantive issues of American public policy and policy formation.

317 Media and Politics
- Relationship between the media and American political institutions and the public.

333 [S] Development of Marxist Thought
- Marxist theory from the original writing of Marx and Engels to contemporary developments.

340 Introduction to Public Administration
- Prereq Pol S 101. Basic theories of administrative organization, relationships, and behavior.

375 Chicana/o and Latina/o Politics
- Same as CES 359.

381 Crime and Justice in the Movies
- Same as Crm J 381.

400 Political Science Issues
- May be repeated for credit; cumulative maximum 6 hours. Prereq Pol S 101. Current issues in political science. Cooperative course taught by UI, open to WSU students (POLS 404).

402 Civil Liberties
- Prereq Pol S 101. Origin and development of civil liberties; responsibility of the branches of government and the people for their maintenance.

404 [M] The Judicial Process
- Prereq Pol S 101. Relationship of judicial behavior to structure, politics and the behavior of other participants in the judicial process.

405 [M] Comparative Criminal Justice Systems
- Same as Crm J 405.

410 History of American Indian Sovereignty and Federal Indian Law
- Same as Hst 410.

416 Policy Analysis
- Analysis of public policy formation, evaluation and implementation.

417 Voting and Elections
- Analysis of voting behavior and elections; turnout, influences on voter choice, congressional and presidential elections, campaign finance, and polling.

418 Human Issues in International Development
- Same as Anth 418. Cooperative course taught by WSU, open to UI students (POLS 462).

420 Political Parties and Interest Groups
- Roles, characteristics, and theories of political parties; organization, behavior, and impact of interest groups.

- Prereq Pol S 103. Substantive and theoretical research on issues relevant to formulation and requirements of post-Cold War, US national security and defense policy.

427 United States Foreign Relations
- Ends and means in foreign policy; organization, management, control, and current policy issues.

428 [T] Issues in Political Psychology
- 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.

429 Special Topics in American Foreign and Defense Policy
- May be repeated for credit; cumulative maximum 6 hours. Prereq Pol S 102 or 103. Current issues in foreign policy.

430 [T] The Politics of Natural Resource and Environmental Policy
- Prereq completion of one Tier I and three Tier II courses. Issues and problems of natural resource and environmental policy.

432 [M] Comparative Public Policy
- Processes of public policy formation and outcomes in post-industrial democracies, and how to analyze it in a comparative perspective.

435 Politics of Developing Nations
- Issues and problems of political development and modernization common among developing nations. Cooperative course taught by WSU, open to UI students (POLS 501).

436 Disability, Aging, and Public Policy
437 Classical Political Thought 3 The development of political philosophy from the pre-Socratics to Machiavelli.
438 [M] Recent Political Thought 3 The development of political thought since Machiavelli.
442 [M] Leadership Skills for the Public Sector 3 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.
443 Administrative Jurisprudence 3 Study of the origins, nature, and practice of justice and law in public administration.
445 Public Personnel Administration 3 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 (POLS 445).
446 [M] Public Budgeting 3 The government budget as an instrument of politics, planning and control; organizing for democratic accountability.
447 [M] Comparative Public Administration 3 Public administration systems in Europe, Japan, Socialist and developing countries; origins and development.
448 Urban Politics and Policy 3 Urban political processes and policies; intergovernmental relationships; impact of urban reform.
450 [M] The Legislative Process 3 Role of legislatures in a democratic system; problems of representation; election and tenure of lawmakers; legislative organization and procedures.
455 The Presidency 3 Organization and processes of executive institutions at the national level; uses and limits of executive power.
472 [M] European Politics 3 Government and politics of postindustrial societies, including West Europe and Japan.
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 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.
497 Political Science Internship V 1 (0-3) to 12 (0-36) 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. S, F grading.
498 Cooperative Education Internship V 2 (0-6) to 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. By interview only. Off-campus cooperative education internship with business, industry, or government unit coordinated through the Professional Experience Program. S, F grading.
499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. S, F grading.
501 The Scope of Political Science 3 Prereq 12 hours Pol S. Historical development and present status of the discipline; contemporary issues and future trends. Cooperative course taught by UI, open to WSU students (POLS 530).
502 Seminar in Normative Theory 3 Elements of normative theory developments; examination of bases of controversies and approaches in the modern literature using historical sources.
503 Research Methods in Political Science and Criminal Justice 3 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. Cooperative course taught by WSU, open to UI students (POLS 531).
504 Quantitative Methods in Political Science and Criminal Justice 3 Prereq introductory statistics course. Applied statistical skills, enabling understanding of substantive political and social questions.
505 Comparative Criminal Justice Systems 3 Same as Crm J 505.
510 Seminar on American Institutions and Processes 3 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.
511 Seminar in American Political Thought 3 May be repeated for credit; cumulative maximum 6 hours. The genesis and development of political thought in the United States.
512 Seminar in American Institutions 3 May be repeated for credit; cumulative maximum 6 hours. Origin, development, and contemporary issues in political organization and structure in the United States.
513 Seminar in American Political Behavior 3 May be repeated for credit; cumulative maximum 6 hours. Theoretical approaches to, and empirical analysis of, mass political behavior in the US.
514 Seminar in Public Policy 3 Examination of central questions in public policy including the nature of public policy, policy analysis, and government intervention in society.
516 Seminar on Law, Courts, and Judicial Politics 3 Prereq graduate standing. Seminar on law, courts, and judicial politics.
520 Seminar in Normative Theory 3 May be repeated for credit; cumulative maximum 6 hours. Psychological influences on political decision making, bargaining, conflict and conflict resolution options.
521 Seminar in Comparative Politics 3 Cooperative course taught jointly by WSU and UI (POLS 595).
522 Seminar in International Political Economy 3 Institutions, politics, and decision-making processes in managing international economic relations.
523 Topics in Political Psychology 3 May be repeated for credit; cumulative maximum 6 hours. Psychological influences on political decision making, bargaining, conflict and conflict resolution options.
524 Seminar in Comparative Politics 3 Cooperative course taught jointly by WSU and UI (POLS 595).
526 Special Topics in Comparative Politics 3 May be repeated for credit; cumulative maximum 6 hours. Advanced issues seminar in International and Comparative Politics.
527 Concepts and Methods in Comparative Politics 3 May be repeated for credit; cumulative maximum 6 hours. Selected concepts (state, political participation), and methods (cross-national analysis, case study approaches) in comparative politics.
533 Topics in Political Psychology 3 May be repeated for credit; cumulative maximum 6 hours. Psychological influences on political decision making, bargaining, conflict and conflict resolution options.
534 Seminar in Comparative Politics 3 Cooperative course taught jointly by WSU and UI (POLS 595).
536 Seminar in International Political Economy 3 Institutions, politics, and decision-making processes in managing international economic relations.
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 Evaluation Research 3 Same as Crm J 540.
542 Proseminar in Administration, Justice, and Applied Policy Studies 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Pol S 340 or 445. Analytical perspectives and theoretical issues. Cooperative course taught jointly by WSU and UI (POLS 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 UI, open to WSU students (POLS 501).
Predental Curriculum

Smith Center for Undergraduate Education, Room 502
509-335-4549

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. Typically, 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.

- English composition (Engl 101 and an additional [W] course or Engl 198/199)
- General chemistry (Chem 105 and 106 or Chem 115 and 116)
- Organic chemistry (Chem 345 and 348)
- Physics (Phys 101 and 102 or Phys 201 and 202)
- Introductory biology (Biol 106 and 107)

In addition, some institutions require Microbiology (MBioS 305 and 306), Biochemistry (MBioS 303), Biochemistry Laboratory (MBioS 304), 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 to exceptional scores on the Dental Admission Test (DAT), the possession of personal qualifications necessary for the study of dentistry, and a single committee letter written by the predental applicant advisory committee.

Additional information can be obtained from K.L. Brothers, Ph.D., Washington State University, 502 Smith Center for Undergraduate Education, Pullman, WA 99164-4551.

Premedical Curriculum

Smith Center for Undergraduate Education, Room 502
509-335-4549

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. Typically a total of 21 credits of elective courses in humanities and social sciences, plus coursework in each of the following areas, will meet the requirements of almost all institutions and also give a good preparation for the MCAT.

- English composition (Engl 101 and an additional [W] course or Engl 198/199)
- General chemistry (Chem 105 and 106 or Chem 115 and 116)
- Organic chemistry (Chem 345 and 348)
- Physics (Phys 101 and 102 or Phys 201 and 202)
- Introductory biology (Biol 106 and 107)
- Molecular biology (MBioS 301, 305, and 306)
- Biochemistry (MBioS 303)

All medical schools assume that applicants will have developed math skills adequate to the demands of the required courses listed above; however, a few schools specify either a semester or a year of calculus (Math 140 or 171, with Math 172 if a full year is needed; some students will require Math 107 in preparation for calculus).

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 committee letter written by the premedical/predental applicant advisory committee must strongly support the applicant. The latter is preferable.

Many medical schools welcome applications from students who have majors, or who have taken considerable coursework, 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 K. L. Brothers, Ph.D., Washington State University, 502 Smith Center for Undergraduate Education, Pullman, WA 99164-4551.

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. Information on specific majors can be found in this catalog under the individual department and major headings. A minimum of three years of college or completion of a baccalaureate degree is strongly recommended. For more information on preparation for admission to veterinary medicine, students are encouraged to see the pre-veterinary advisors in the Pre-Health Advising and STEM Education office, 502 Smith Center for Undergraduate Education (CUE Bldg), Pullman, WA 99164-4551.
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 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biol 101 [B] and 105 [B], or Biol 102 [B], or higher (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
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</tr>
<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
<td>3</td>
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<tr>
<td>Psych 105 [S] (GER) or Psych 198</td>
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Second Term

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<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>Communication Proficiency [C,W] (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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<tr>
<td>Social Sciences [S,K] (GER)</td>
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Second Year

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<tr>
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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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<td>Psych 311</td>
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Second Term

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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>Biological [B] or Physical [P] Sciences (GER)</td>
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<td>Psych 312 [M]</td>
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Third Year

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<td>Group II Psych Elective1</td>
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Fourth Year

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<tr>
<td>Psych Elective1</td>
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<td>Tier III Course [T] (GER)</td>
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<tr>
<td>300-400-level Non-Psych Electives</td>
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</table>

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 justice 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 or 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, SJS 371, 478, 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

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 1 Rec Psych 105 or 198. Application of psychological procedures to the problems of group living, alcohol use, sexual decision making and related social issues.

110 Introduction to Addiction Studies 3 Analysis of cultural, societal, individual, and physiological factors underlying drug addiction.

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.

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. Psych 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 333. 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.

361 [S] Principles of Developmental Psychology 3 Prereq Psych 105 or Psych 198. Introduction to biological and psychosocial influences on infant, child and adolescent development.

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.


403 [T,D] Cultural Issues in Psychology 3 Prereq 3 hours cultural psychology. Same as CES 403.

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 (PSYC 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) to 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.

**446 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, open to WSU students (PSYC 446).

**464 Behavior Disorders of Children and Adolescents** 3  
Prereq Psych 105 or Psych 198; Psyh 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.

**468 Addictive Behavior Across the Demographic Spectrum** 3  

**470 Motivation** 3  
Prereq Psych 105 or Psych 198. Rec Psych 372, Psych 390, or Psych 490. Different motivational systems; analysis of environmental and biological factors influencing motivation, with emphasis on human motivation.

**473 [M] Advanced Physiological Psychology** 3  
Prereq Psych 372 or Neuro 301. Neurophysiological, hormonal, and biochemical bases of regulatory behavior; theoretical and applied issues.

**480 Special Topics: Study Abroad**  V 1-15  
May be repeated for credit; cumulative maximum 100 hours. S, F grading.

**490 Cognition and Memory** 3  
Prereq 6 hours Psych. Human information processing, memory, and cognition.

**491 (390) Principles of Learning** 3  
Prereq Psych 105. Principles of learning from a behavioral perspective using the experimental analysis of behavior. Credit not granted for both Psych 491 and 591.

**492 [T] Psychology of Language** 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.

**495 Field Experience in Personnel Psychology**  V 2 (0-6) to 6 (0-18)  
May be repeated for credit; cumulative maximum 6 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. S, F grading.

**496 Cooperative Education Internship**  V 2 (0-6) to 6 (0-18)  
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.

**497 Instructional Practicum**  V 1 (0-3) to 4 (0-12)  
May be repeated for credit; cumulative maximum 4 hours. S, F grading.

**498 Research Participation**  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.

**499 Special Problems**  V 1 (0-3) to 4 (0-12)  
May be repeated for credit. S, F grading.

**502 Research Design**  V 1 (0-3) to 3 (0-9)  
May be repeated for credit; cumulative maximum 16 hours. Research design, equipment, data collection, data analysis, and report writing. S, F grading.

**504 History of Psychology: Theoretical and Scientific Foundations** 3  
Roots of scientific explanation in psychology traced through various philosophical schools and psychological movements.

**505 Teaching Introductory Psychology**  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.

**506 Current Research in Psychology** 1  
May be repeated for credit; cumulative maximum 2 hours. Current research being conducted by psychology faculty and members of associated departments. S, F grading.

**508 Special Topics in Psychology** V 1-3  
May be repeated for credit.

**511 Analysis of Variance and Experimental Design** 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.

**512 Correlation, Regression, and Quasi-Experimental Design** 3  
Prereq Psych 511. Simple and multiple correlation and regression; time-series analysis; factor analysis; field research and quasi-experimental design.

**513 Seminar in Quantitative Methods and Research Design** 3  
May be repeated for credit. Prereq Psych 512. Advanced topics in specialized quantitative procedures and in design of research in psychology.

**514 Psychometrics** 3  
Prereq Psych 512. Scientific construction of behavioral assessment instruments, including validation and reliability; types of scales and responses; statistical scaling; test theory issues.

**515 Multilevel and Synthesized Data** 3  
Prereq Psych 512. Structural equation modeling, hierarchical linear modeling and meta-analysis and the software used to conduct these analyses.

**516 Applied Structural Equation Modeling with Current Software** 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.

**519 Industrial/Organizational Psychology** 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, open to WSU students (PSYC 516).

**520 Empirical Approaches to Psychotherapy** 3  
Prereq Psych 533. Major therapy systems, research on process and outcome of therapy.

**530 Professional, Ethical, and Legal Issues** 3  
Application of professional, ethical, and legal issues in clinical psychology to such topics as confidentiality, dual-relationships, research, assessment, and intervention.

**533 Adult Psychopathology** 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 (PSYC 575).

**534 Clinical Psychopharmacology** 3  
Prereq Psych 533. Classification, clinical application, and mechanisms of psychotherapeutic drugs used in the treatment of mental disorders.

**535 Clinical Assessment and Diagnosis** 3  
Diagnostic interviewing, conceptualization of clinical problems, case presentations, and treatment planning.

**536 Measurement Theory and Personality Assessment** 3  
Prereq by interview only. Psychometric theory, theories of personality, objective and projective methods of assessing personality, development of testing and interpretive skills.

**537 Psychology Clinic Assessment Practicum** 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.

**538 Child Therapy Practicum** 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.

**539 Measurement Theory, Intellectual and Personality** 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.
543 Child Clinical Psychology: Empirical Approaches to Assessment and Therapy 3 Research on developmental psychopathology, child assessment, and child therapy.

544 Medical Psychology: Psychological and Pharmacological Interventions 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 (PSYC 544).

545 Psychology Clinic Adult Therapy Practicum 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.

546 Counseling Service Practicum 1 V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 12 hours. Prereq Psych 545 or c/. By interview only. Supervised practice in the clinical application of psychology at the WSU Counseling Service. S, F grading.

547 Medical Psychology Practicum 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.

548 Clinical Extenship 3 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.

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 (PSYC 520).

552 Diversity Issues in Psychology 3 Research, theories, and controversies regarding the role of human diversity in psychotherapy, psychological assessment, and clinical research.

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, open to WSU students (PSYC 561).

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, open to WSU students (PSYC 562).

574 Physiological Psychology 3 Neuroanatomical, neurochemical, and other biological cases of human and animal behavior. Cooperative course taught by WSU, open to UI students (PSYC 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 (PSYC 575).

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 (PSYC 566).

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 (PSYC 566).

591 Principles of Learning 3 Prereq graduate standing. Graduate level counterpart of Psych 491; additional requirements. Credit not granted for both Psych 491 and 591.

592 Cognition and Memory 3 Experimental approaches to human information processing, memory, and cognition.

595 Clinical Internship in Psychology 2 V 2 (0-6) to 16 (0-48) 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 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study and/or Examination 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Public Affairs - Vancouver
http://cla.vancouver.wsu.edu/public-affairs
Multimedia Classroom Building, Room 202N
360-546-9125

Professor and Academic Director, A. Wharton; Associate Professor and Program Director, D. Baker; Professors, J. Goodstein, T. Tripp; Associate Professors, L. Drapela, C. Long, C. Mosher, M. Stephan, P. Thiers, D. Wood; Assistant Professors, D. Jaffee, A. Lucelbe, A. Maclean.

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 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.

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 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
GenEd 110 [A] (GER) 3
Pol S 101 [S] 3

Second Term Hours
Arts & Humanities [H,G] (GER) 3
Foreign Language, if necessary, or Elective 3
GenEd 111 [A] (GER) 3
Math Proficiency [N] (GER) 3
Social Science [S,K] GER 3

Second Year

First Term Hours
Communication Proficiency [C,W] (GER) 3
Physical Sciences [P] (GER) 4
Pol S 300 3
Pol S 316 3
Electives 3
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.

298 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. Field trip required.

299 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.

430 (Ph S) Methods of Teaching Science 3 (2-3) Prereq 36 hours science. Same as Biol 430.

Program

Morrill 208
509-335-5548

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 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 of study; 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

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 and Plan B

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 106 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 105 [P] (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>
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</tbody>
</table>

Second Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 107 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 106 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 140 [N] or 171 [N] (GER)</td>
<td>4</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Chem 345</td>
<td>4</td>
</tr>
<tr>
<td>Communication Proficiency [C,W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>MBioS 301</td>
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<tr>
<td>Elective</td>
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Second Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Chem 346</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
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</table>
### General Studies - Basic Medical Sciences Plan B (120 Hours)

#### First Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biol 106 [B] (GER)</td>
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</tr>
<tr>
<td>Chem 105 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Engl 110 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
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</table>

#### Second Year

<table>
<thead>
<tr>
<th>Second Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 107 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 106 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 140 [N] or 171 [N] (GER)</td>
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</tr>
</tbody>
</table>

### 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 need to take 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

General Biological Sciences (Gen B): One year of 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.

---

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, and, for some programs, required. Students are encouraged to pursue a minor in other areas of more in-depth science minor.
3. An elective may be substituted for Phys 101 and 102 if it is not required for entrance to a graduate or professional program.

---

### Department of Sociology

libarts.wsu.edu/soc

Wilson-Short 204
509-335-4595

Associate Professor and Department Chair, L. McIntyre; Professors, M. Allen, D. Dillman, G. Hooks, C. Mosher, G. Rosa, T. Rotolo, A. Wharton; Associate Professors, S. Fricke, E. Fussell, C. Horne, M. Johnson, J. Knoc, J. Schwartz; Assistant Professors, D. Jaffee, E. Johnson, K. Lloyd, A. MacLean, J. Sherman; Clinical Associate Professor, C. Oakley.

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 department offers courses of study leading to the degrees of Bachelor of Arts in Sociology, Master of Arts in Sociology, and Doctor of Philosophy. It also offers an undergraduate minor in Sociology.

Undergraduate Studies

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.

Learning Outcomes: 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) reason symbolically and quantitatively, 4) conduct/evaluate empirical research, 5) critically apply sociological concepts to “real world” situations, 6) understand how individual behavior and social institutions affect social order, 7) communicate effectively orally and in writing, 8) enhance life skills such as civility and cooperation, and 9) respect social diversity.

Degree 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 consult with an academic advisor. The following courses are required for all sociology majors: Introduction to Sociology (Soc 101), Development of Social Theory (Soc 310), Research Methods in Sociology (Soc 317 [M]), and a department approved course in statistics for the social sciences (Soc 321), and one of the following “capstone experience” integrative capstone courses: Capstone Internship (Soc 495), Capstone Service (Soc 496), or Capstone Research Practicum (Soc 497).

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

(121 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

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>First</td>
<td></td>
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<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>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>Second</td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] (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>
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<tr>
<td>Science Elective (GER)</td>
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<tr>
<td>Elective</td>
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Second Year

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>First</td>
<td></td>
</tr>
<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>Biological Sciences [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Intercultural Studies [I,[G,K] (GER)</td>
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</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>Second</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>Physical Sciences [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Soc 101 [S] (GER)</td>
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<td>Soc Elective</td>
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<tr>
<td>Elective</td>
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<tr>
<td>Complete Writing Portfolio</td>
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Third Year

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>First</td>
<td></td>
</tr>
<tr>
<td>Related Field Electives</td>
<td>6</td>
</tr>
<tr>
<td>Soc 310</td>
<td>3</td>
</tr>
<tr>
<td>Soc 317 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Soc Elective [M]</td>
<td>3</td>
</tr>
<tr>
<td>Second</td>
<td></td>
</tr>
<tr>
<td>Related Field Electives</td>
<td>6</td>
</tr>
<tr>
<td>Soc 321</td>
<td>4</td>
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<td>Soc Elective [M]</td>
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Fourth Year

<table>
<thead>
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<th>Hours</th>
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<tbody>
<tr>
<td>First</td>
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<tr>
<td>Related Field Electives</td>
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<td>Soc 495 [M], 496 [M] or 497</td>
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<tr>
<td>Soc Electives</td>
<td>3</td>
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<tr>
<td>Second</td>
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<td>Related Field Electives</td>
<td>9</td>
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<tr>
<td>Elective</td>
<td>3</td>
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<tr>
<td>Tier III Course [T] (GER)</td>
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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

SOCILOGY

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>Soc</td>
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</tr>
<tr>
<td>101</td>
<td>[S,D] Introduction to Sociology</td>
</tr>
<tr>
<td>102</td>
<td>[S,D] Social Problems</td>
</tr>
<tr>
<td>150</td>
<td>[S,D] Marital and Sexual Life Styles</td>
</tr>
<tr>
<td>250</td>
<td>[S,D] Perspectives on Disability</td>
</tr>
<tr>
<td>300</td>
<td>[S,M] Intersections of Race, Class, Gender and Sexuality</td>
</tr>
<tr>
<td>302</td>
<td>[S,D] Contemporary Masculinity and Men's Issues</td>
</tr>
<tr>
<td>310</td>
<td>Development of Social Theory</td>
</tr>
<tr>
<td>317</td>
<td>Research Methods in Sociology</td>
</tr>
<tr>
<td>320</td>
<td>Introduction to Social Research</td>
</tr>
<tr>
<td>331</td>
<td>Population, Resources, and the Future</td>
</tr>
<tr>
<td>332</td>
<td>Society and Environment</td>
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<td>Soc</td>
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<tr>
<td>101</td>
<td>[S,D] Introduction to Sociology</td>
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<tr>
<td>102</td>
<td>[S,D] Social Problems</td>
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<tr>
<td>150</td>
<td>[S,D] Marital and Sexual Life Styles</td>
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<td>300</td>
<td>[S,M] Intersections of Race, Class, Gender and Sexuality</td>
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<td>[S,D] Contemporary Masculinity and Men's Issues</td>
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<td>310</td>
<td>Development of Social Theory</td>
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<td>Research Methods in Sociology</td>
</tr>
<tr>
<td>320</td>
<td>Introduction to Social Research</td>
</tr>
<tr>
<td>331</td>
<td>Population, Resources, and the Future</td>
</tr>
<tr>
<td>332</td>
<td>Society and Environment</td>
</tr>
</tbody>
</table>
333 Science, Power and Human Values 3 Recent developments in the sociological study of science and scientific knowledge through cultural, commercial, and political perspectives.


343 [S,D] Sociology of Professions and Occupations 3 Prereq Soc 101. Social organization of work in America including historical and contemporary trends, bureaucracies, 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.

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 Criminology 3 Prereq Soc 101. Crime measurement, the correlates of crime, and specific types of crime such as white-collar and drug crime.


367 Juvenile Justice and Corrections 3 Same as Crm J 365. Cooperative course taught by WSU, open to UI students (C J 365).

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 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 EconS 101. Same as EconS 326.


390 [S,D] Gender and Work 3 Gender and inequality at work including occupational segregation, wage inequality and balancing work and family.

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. May be repeated for credit; cumulative maximum 6 hours.

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.


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.

480 Sociology of Race Relations 3 Basic understanding of race relations; major sociological concepts and theories regarding minority and majority group relations.

484 [T,D] Lesbian and Gay Studies 3 Same as W St 484.
Sociology

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 V 1 (0-3) to 3 (0-9) 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.

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.

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.

580 Sociology of Race Relations 3 Analysis of race/ethnic relations; historical and current theoretical explanations of race/ethnic relations.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

Department of Speech and Hearing Sciences
libarts.wsu.edu/speechhearing/
Daggy 201
509-335-4525

Professor and Department Chair, G. D. Chermak; Professor, C. L. Madison; Associate Professors, E. Inglebret, N. Potter; Assistant Professors, T. Cardon, A. Meredith; Clinical Professor, L. Power; Clinical Associate Professors, S. Bassett, J. Nyc; Instructor, M. Ratsch; Professors Emeriti, J. R. Franks, R. E. Potter.

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. The Department also offers a minor in speech and hearing sciences. 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 undergraduate and graduate programs, located in the Health Sciences Building at the Riverpoint Campus of Washington State University Spokane, are cooperative ventures, 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 graduate training facility for the University Programs in Communication Disorders. Opportunities to work with special populations and in medical settings are readily available for graduate students in the Spokane area. A capstone graduate 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. The upper-division course work in the major will be offered in Spokane only effective fall 2011.

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 human development, linguistics, education, psychology, and other 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 (120 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 473 and 478 fulfills the university requirement of two writing in the major courses, designated [M].

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 full enrollment. GERs must be completed in College of Liberal Arts prior to the fifth semester.

First Year

First Term Hours
Arts & Humanities [H,G] (GER) 3
Biological Sciences [B] (GER) 4
Minors

Disability Studies

The minor in disability studies requires 18 credit hours, with 9 hours in 300-400-level course work taken in resident 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 Speech and Rehabilitation—CoPsy 478, EconS 455 FSHN 405, MvtSt 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

SPEECH AND HEARING SCIENCES

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 psychophysiologic 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 remediation 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 Prereq SHS 375 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.

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.

451 Neurogenic Communication Disorders 3 Prereq SHS 479. 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 2 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.

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 early-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 Senior Seminar 2 Specialized topics in speech and hearing sciences.
548 [M] Assessment of Speech and Language 3 Prereq SHS 376 or c//; 478. Principles, techniques, and materials involved in exploring the nature of speech and language disorders; planning programs of therapy.

549 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.

550 Special Problems V 1-4 May be repeated for credit. S, F grading.

551 Research Methods 3 Philosophy of research, types of literature; experimental and descriptive designs; application of statistics; analysis of statistical results.

552 Research Methods II 2 Experimental and descriptive designs, application of statistics, analysis of statistical results. SHS graduate student; all undergraduate prerequisite courses completed.

553 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.

554 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.

555 Bilingual and Cultural Issues 2 Cultural and linguistic variables that may impact speech-language pathology services of culturally and linguistically diverse populations; assessment and treatment considerations.

556 Problems in Stuttering 2 Historical and current literature; problem-solving strategies applied to theoretical and clinical problems in stuttering. SHS graduate student; all undergraduate prerequisite courses completed.

557 Cleft Palate and Craniofacial Disorders 2 Speech and voice problems associated with clefts of the lip and palate. SHS graduate student; all undergraduate prerequisite courses completed.

558 Advanced Internship in Speech-Language Pathology V 1 (0-3) to 18 (0-54) May be repeated for credit. Prereq SHS 566, 575, by interview only. Advanced practicum in diagnosis of and therapy for communication disorders. SHS graduate student; all undergraduate prerequisite courses completed. S, F grading.

559 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.

560 Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Advanced study of specialized topics in speech and hearing sciences. SHS graduate student; all undergraduate prerequisite courses completed.

561 Motor Speech Disorders 3 SHS graduate student; all undergraduate prerequisite courses completed. Underlying processes of neuromuscular control and feedback; results of damage and disease on neuromotor system.

562 Dysphagia 3 Anatomy and physiology of swallowing; evaluation and treatment of swallowing disorders. SHS graduate student; all undergraduate prerequisite courses completed.

563 Augmentative Communication 3 Augmentative communication theory; implementation, training strategies, ongoing adjustments, and evaluating effectiveness. SHS graduate student; all undergraduate prerequisite courses completed.

564 Off-Campus Practicum Public School Setting V 2 (0-6) to 6 (0-18) May be repeated for credit; cumulative maximum 15 hours. Prereq SHS 575; by interview only. Advanced clinical practice in a public school setting; evaluation and treatment of speech, language, and hearing disorders. SHS graduate student; all undergraduate prerequisite courses completed.

565 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.

566 Off-Campus Practicum Clinical Setting V 2 (0-6) to 6 (0-18) May be repeated for credit; cumulative maximum 15 hours. Prereq by interview only. Advanced clinical practice in an off-campus clinical/medical setting; evaluation and treatment of speech, language and hearing disorders.

567 Voice Disorders 2 Functional and organic voice disorders resulting from various etiologies. SHS graduate student; all undergraduate prerequisite courses completed.

568 Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Advanced study of specialized topics in speech and hearing sciences. SHS graduate student; all undergraduate prerequisite courses completed.

569 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.

570 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.

571 Phonological Acquisition and Behavior 3 Current literature in articulatory development and deviancy; diagnosis and therapy. SHS graduate student; all undergraduate prerequisite courses completed.

572 Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Advanced study of specialized topics in speech and hearing sciences. SHS graduate student; all undergraduate prerequisite courses completed.

573 Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for 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 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, faculty carry out active research programs in the discipline of statistics itself.

The Department of Statistics currently offers an MS degree with applied and theoretical options and a graduate minor. Students pursuing a Ph.D in another field may enroll in the M.S. in Statistics/Ph.D option, which allows them to pursue a Ph.D. in their primary discipline and an M.S. in Statistics simultaneously. For specific requirements for these degrees and options, please contact the Statistics Department at statistics@wsu.edu.

Preparation for the M.S. Degree in Statistics

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

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 (3-2) Prereq Math 103 or intermediate math placement score of 13. Introduction to descriptive and inferential statistics: t-tests, chi-square tests, one-way ANOVA, simple linear regression and correlation.


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 Stat 370.

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, open to WSU students (STAT 401).

410 Topics in Probability and Statistics 3 May be repeated for credit; cumulative maximum 6 hours. Prereq one 3 hour statistics course. Credit not granted for both Stat 410 and 510.

412 Statistical Methods in Research I 3 Prereq Stat 212, Math 140, 171, 202, or graduate standing. Intermediate statistical methods, design and analysis of research studies; completely randomized and randomized block designs, multiple regression, categorical data analysis. Cooperative course taught by WSU, open to UI students (STAT 412).

422 Sampling Methods 3 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, variograms, kriging, and simulation. Cooperative course taught by UI, open to WSU students (GEOE 428).

430 Statistical Methods in Engineering 3 Prereq Stat 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.

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, open to WSU students (STAT 446).

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.

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, open to WSU students (STAT 507).

508 Environmental Spatial Statistics 3 (2-2) Prereq Stat 412. Same as Soils 508. Cooperative course taught by WSU, open to UI students (REM 508).

510 Topics in Probability and Statistics 3 May be repeated for credit; cumulative maximum 6 hours. Prereq one 3 hour statistics course. Graduate-level counterpart of Stat 410; additional requirements. Credit not granted for both Stat 410 and 510.

512 Statistical Methods in Research II 3 (2-2) Prereq Stat 412 or equivalent. Analysis and interpretation of designed experiments: CRD, RCBD, split-plot and repeated measures, multiple comparisons, multiple regression modeling; validation of assumptions.

514 Nonparametric Statistics 3 Prereq Stat 512. Conceptual development of nonparametric methods including one, two, and k-sample tests for location and scale, randomized complete blocks, rank correlation, and runs test; power, sample size, efficiency, and ARE. Cooperative course taught by UI, open to WSU students (STAT 514).

516 Time Series 3 Prereq MgtOp 515 or Stat 443. Same as MgtOp 516. Cooperative course taught by WSU, open to UI students (STAT 539).

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).
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, Reading, Middle Level Math, and Middle Level Science. Graduate programs include Master of Arts in Education, Masters of Education, Masters in Teaching, Doctor of Education, and Doctor of Philosophy. Doctoral specializations are available in these areas: Cultural Studies and Social Thought in Education, Language, Literacy, and Technology, Teacher Leadership, 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 education: 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, and (5) demonstrate professional habits of respect, accept and use feedback, and consider others’ ideas and perspectives. Doctoral students will achieve master’s level outcomes and also will: (1) conduct and disseminate original scholarship that demonstrates development 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(f)(2) of the Higher Education Act, is available upon request. Visit our web site at http://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 teaching 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.
teach. Teacher education is offered at the Pullman, Spokane, Tri-Cities, and Vancouver campuses, although not all programs are available at each site. The teaching certificate will be awarded if the following provisions are met:

- 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.
- The degree is awarded and the professional education program is satisfactorily completed following these guidelines:
  - All course work is taken for a letter grade where offered. Pass, fail grading is not accepted except for field experience courses.
  - 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.
  - The cumulative WSU gpa and the gpa computed separately for professional course work and each endorsement is not less than 2.75 for Health and Fitness 2.5 for all other areas.
  - The student has completed all work within five years of admission to teacher education. Those not finishing within this time limit will be subject to all new program requirements.
  - 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.
  - The candidate has made application to OSPI and paid licensing fees.
  - 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. In addition, 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 that 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

http://www.education.wsu.edu/certification/

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 ProTeach Support Program is offered at the Spokane, Tri-Cities, and Vancouver campuses. Online and district partnerships are offered through the Pullman campus. Information is available upon request from the College of Education, PO Box 642114, Pullman, WA 99164-2114, (509) 335-1988, and on regional campus web sites.

WSU PULLMAN/SPokane 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 http://education.wsu.edu/certification/.

WSU Pullman seeks to prepare the best possible teachers and therefore seeks highly qualified individuals. Admission to, or continued enrollment in, the teacher education 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 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 and Space Science, English Language Arts, World Languages (French 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, Middle Level Math, Middle Level ScienceReading, 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 Education

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 education prior to taking any professional education course work beyond T & L 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.

- Completion, within the last three years, of 80 hours of supervised work with children 4 years of age or older in a supervised setting.
- A passing score on the WEST-B, a statewide basic skills test. For information and registration go to http://education.wsu.edu/studentervices.
- Completion of at least 45 semester hours of post-secondary course work.
- Minimum WSU cumulative gpa of 2.50 (transfer student gpa is based on WSU course work).
- Engl 101, plus one from Engl 201, 301, 302, 402 or equivalent composition course work with a minimum grade of C.
- T & L 301 graded C or better.
- Elementary Majors: ComSt 102 or H D 205, or equivalent public speaking course; H D 101, Math 251, and three of the four required GER science courses, all graded C or better.
- Secondary Majors: Nine hours of course work in the endorsement area. Certified in major department. Contact major department for additional requirements.
- Personal goal statement.
- Interview and writing sample (for Elementary majors only).

Field Experiences and Student Teaching

Washington State University requires background clearance for all students admitted into the undergraduate teacher preparation, Master in Teaching (MIT), and selected add-on endorsement programs. 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 semester prior to the advanced practicum semester. Fingerprint and background clearance is required for enrollment in T & L 402, 405, 415, 469, 490, 593, and 595. Application forms are distributed at an orientation held each semester. An interview is required to begin student teaching. The following courses are required field experiences:

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 and the Field Experience Office. 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, Initial Practicum Experience (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 or prior to enrollment in Block I classes, 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 practica involve observation, reflection, and practice in classrooms.
Master of Arts in Education

DEGREES (non-certification)
WSU Pullman/Spokane offers a Master of Arts in Education degree (M.A.) program with specialization and/or endorsement in Curriculum and Instruction, ELL/Bilingual Education, Literacy Education, and/or Special Education. Students planning to add an endorsement to a Washington teacher certificate must apply to WSU's add-on endorsement program. This thesis degree focuses on developing research and inquiry skills and other professional knowledge and skills in education and leadership and may include a concentration of coursework outside the Department of Teaching and Learning.

Master of Education Degree (Ed.M.)
WSU Pullman/Spokane also offers a Master of Education degree (Ed.M.) program specialization and/or endorsements in Curriculum and Instruction, Language and Literacy Education, Special Education, and/or ELL/Bilingual Education. 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.

WSU PULLMAN/SPokane DOCTORAL PROGRAMS

Doctor of Philosophy in Education (Ph.D.)
(Pullman only) Specializations include Cultural Studies and Social Thought in Education, Language, Literacy and Technology, and Special Education (see http://education.wsu.edu/graduate/ for program descriptions and application procedures).

Doctor of Education (Ed.D.)
The specialization for the Ed.D. program is Teacher Leadership (see http://education.wsu.edu/graduate/ for program descriptions and application procedures).

WSU TRI-CITIES TEACHER CERTIFICATION
http://www.tricity.wsu.edu/education/index.html
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) 372-7396.

WSU VANCOUVER TEACHER CERTIFICATION
http://www.vancouver.wsu.edu/programs/edu/education.htm
Inquiries and requests for application materials for teacher certification programs 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. 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 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 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 301 must be taken in the first semester of the program by these students in order to remain eligible for the major.

Teacher Professional Certification Program
Washington State University Tri-Cities (WSUTC) has a quality, established support program. WSU's Teacher Pro Certification Support Program consists of two courses: the Pre-Assessment Seminar (T&L 541) and the Culuminating Seminar (T&L 543). Each course runs for the duration of the WSU semester (15 weeks). Instructors generally meet once a week, for three hours. Cohorts are currently scheduled in the Kennewick, Richland, Pasco, and North Franklin school districts. Additionally, these courses can be taken either for graduate credit (3 credits each course) or as a non-credit course ($500/each course). The curriculum is the same regardless of which option you choose.

Master of Education (Ed.M.)
Washington State University Tri-Cities offers the Master of Education (Ed.M.) degree with specializations in Literacy, ELL/Bilingual, and Curriculum and Instruction. The Ed.M. is a non-thesis degree designed for educators wishing to extend their professional knowledge and enhance their competence as practitioners. Course credit also may be used to meet continued certification requirements or lead to a Reading, Special Education, Bilingual Education, and/or English Language Learner endorsement. 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.

Master of Arts in Education

DEGREES (non-certification)
WSU Pullman/Spokane offers a Master of Arts in Education degree (M.A.) program with specialization and/or endorsement in Curriculum and Instruction, ELL/Bilingual Education, Literacy Education, and/or Special Education. Students planning to add an endorsement to a Washington teacher certificate must apply to WSU's add-on endorsement program. This thesis degree focuses on developing research and inquiry skills and other professional knowledge and skills in education and leadership and may include a concentration of coursework outside the Department of Teaching and Learning.

Master of Education Degree (Ed.M.)
WSU Pullman/Spokane also offers a Master of Education degree (Ed.M.) program specialization and/or endorsements in Curriculum and Instruction, Language and Literacy Education, Special Education, and/or ELL/Bilingual Education. 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.

WSU PULLMAN/SPokane DOCTORAL PROGRAMS

Doctor of Philosophy in Education (Ph.D.)
(Pullman only) Specializations include Cultural Studies and Social Thought in Education, Language, Literacy and Technology, and Special Education (see http://education.wsu.edu/graduate/ for program descriptions and application procedures).

Doctor of Education (Ed.D.)
The specialization for the Ed.D. program is Teacher Leadership (see http://education.wsu.edu/graduate/ for program descriptions and application procedures).

WSU TRI-CITIES TEACHER CERTIFICATION
http://www.tricity.wsu.edu/education/index.html
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) 372-7396.

WSU VANCOUVER TEACHER CERTIFICATION
http://www.vancouver.wsu.edu/programs/edu/education.htm
Inquiries and requests for application materials for teacher certification programs 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 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.

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, 15-18 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 in order to be considered for the program beginning in January; December 1 is the deadline for application 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. Coursework for the Professional Certification may be applied to the Master of Education degree if the student is admitted to that program and has taken the courses as a graduate student.

**WSU VANCOUVER IN SERVICE AND MASTERS’ DEGREE PROGRAMS (NON-CERTIFICATION)**

Inquiries and requests for application materials should be addressed to WSU Vancouver, Education Department, 14024 NE Salmon Creek Avenue, Vancouver, WA 98686, (360) 546-9075, or by email at admissions@vancouver.wsu.edu.

**Endorsement Program**

WSU Vancouver is proud to offer a number of endorsements for certified teachers to add to their credential. Use these endorsements to open new doors of opportunity to you within your school district or to help you gain employment for the first time. In addition to the traditional route of taking classes and an exam to add an endorsement, we also offer the Pathway 2 alternative route for certain endorsements. Check with our local advisor for more information on this route. Some of our endorsements may also be obtained in conjunction with a master’s degree. Others are strictly “non-degree” endorsements. Endorsements offered as either non-degree or with a Master of Education (Ed.M.): English Language Learners, Reading, Middle Level Mathematics, and Special Education. Endorsements offered only as non-degree: Biology, Early Childhood Education, English/Language Arts, History, Mathematics, Science, and Social Studies.

**Master of Education Degree (Ed.M.)**

WSU Vancouver also offers a Master of Education degree (Ed.M.) program with course work leading to endorsements in Reading, Special Education, Middle Level Mathematics, and/or ELL/Bilingual Education 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.

**Administrative Credential Program**

The Program Administrator and Principal Credential programs are designed as 3 year programs. Courses are typically taken over the first 2 years and a 1-year internship experience (720 hours) is completed during the third year. 3 of the 6 required credential classes are offered each fall, and the other 3 are offered each spring. The State of Washington requires all recipients of administrative credentials to have a master's degree.

We offer the Master of Education degree in conjunction with our Administrative Credential program for those students who still need their master's degree. Adding the master's degree requires five additional courses (3 credits each for 15 credits total) and a comprehensive written examination in addition to the courses required for the administrative program. These 5 courses are typically offered each summer, enabling students to obtain their masters degree in 2 years, and then move into their internship experience in the third year.

**Administrator Professional Certification**

The Professional Certification Program is committed to preparing school leaders who have a passion about quality leadership and a clear understanding of how to positively impact student learning and reach underserved populations. Students complete 6 credits of work, mainly at their school site, over a period of 3 semesters, culminating in a presentation of evidence demonstrating Professional Certificate benchmarks for the ISLLC standards.

**Field-Based Superintendent Certification Program**

The Field-Based Superintendent Certification Program is designed as a 2 year 24-credit program, with the internship occurring concurrently with the coursework throughout its duration. Candidates meet once a month on a weekend for 8 months each year at various locations throughout the state. Students apply and enter the cohort once each year, in the fall semester. Applications for this program are sent through the WSU Spokane Educational Leadership Department to Kelly Lagrutta at (509) 358-7942 or Lagrutta@wsu.edu.

**WSU VANCOUVER DOCTORAL DEGREES**

**Doctor of Education in Educational Leadership**

The state-wide Doctor of Education (Ed.D.) with a specialization in Teacher Leadership is designed to prepare K-16 teachers and teacher leaders for intellectual and practical leadership within classrooms, schools, districts, and the larger educational policy arena. The program is built on an inquiry stance: Students draw from theory, research, and practical experiences to investigate local and statewide teaching and learning programs and practices. The program is cohort-based and requires attendance at three summer sessions (two of which occur on the Pullman campus). Some courses will be delivered face-to-face at each campus. Others will be delivered utilizing distance technology (on-line and/or video-conferencing). Participants must have access to the internet and to a computer with sufficient bandwidth to allow for on-line course delivery. The program is designed for completion within four years including summers, as a part-time student.

**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.

**ELEMENTARY EDUCATION TEACHER CERTIFICATE**

(120 HOURS)

Candidates for the undergraduate elementary education teacher certificate program will satisfy degree requirements of the Department of Teaching and Learning. The degree will be the Bachelor of Arts. The student should include the following course work within GER selections to satisfy prerequisite, degree, and admission to teacher preparation requirements. This course schedule does not include an add-on endorsement.

During the freshman year, students must qualify to enroll in Math 251, pass the Music 388 competency exam or take Music 153, and begin the University Writing Portfolio, as students must receive a pass before taking T&L 306.
First Year

First Term
- Biological Sciences [B] (GER)1
- ComST 102 [C] or H D 205 [C] (GER)
- Engl 101 [W] (GER)
- H D 101 [S] (GER)
- Math prerequisites, if necessary, or Elective

Hours: 4 3 3 3

Second Term
- GenEd 110 [A] (GER)
- Math 251
- Mus 153 [H] (GER), if necessary
- Psych 105 [S] (GER)
- Science Elective [B,P,Q] (GER) 3 or 4

Hours: 3 3 3 3 3

SPECIFIC SUBJECT TEACHER CERTIFICATE (144 HOURS)

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, TgL 301, 317, 464, 465, 466, 467, 469, 470 and 415 unless admitted to the MIT 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 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: Engl 101 and one of the following: Engl 201, 301, 302, or 402; Psych 105.

First Year

First Term
- Engl 101 [W] (GER)
- GenEd 110 [A] (GER)
- Math Proficiency [N] (GER)
- Psych 105 [S] (GER)
- Science Elective [B,P,Q] (GER) 3 or 4

Hours: 3 3 3 3 3

Second Term
- Arts & Humanities [H,G] (GER)
- Biological Sciences [B] (GER)1
- ComST 102 [C] (GER)
- Endorsement2
- GenEd 111 [A] (GER)

Hours: 3 4 3 3 3

Second Year

First Term
- Mus 252 [N] (GER)
- Science Elective [B,P,Q] (GER) 3 or 4
- Tier III Course [T] (GER)3
- Certify Major

Hours: 3 3 3 1

Third Term
- Complete Writing Portfolio

Hours: 1

Fourth Year

First Term
- Sp Ed 420/421
- T & L 1385
- T & L 1413
- T & L 490
- Elective

Hours: 2 or 3 3 2 2 2

Second Term
- T & L 415

Hours: 16

1 Students may substitute 3 credits of Biol 4 and 4 credits of Phys S.
2 Credit hours needed for the endorsement are from 20-74, depending on the major.

SPECIFIC SUBJECT AREA REQUIREMENTS

Agricultural Education (51 hours): AFS 101, 201, 301, 401; A S 101, EconS 350; Ag Ed 342, 407, 440, 442, 471; AgrTM 201, 402; Crops/Hort 102; SoilS 201, plus 9 additional credits, 6 upper division in technical agriculture selected with advisor approval. 18 credits in technical agriculture must be upper division. A valid first aid card is required for Career and Technical certification.

Biology (71-74 hours): Biol 106, 107, 301, 372, 405, 430, 499; Chem 105, 106, 345; MBio 303, 305, 306; Math 140 or 171; Phys 101, 201; Phys 102 or 202; Stat 212, 412, or Psych 311; one from Hist 381, 382, Soc 430 or UH 390; 9 hours approved biological sciences electives.

Chemistry (62-64 hours): Biol 106, 107; Chem 105 or 115, 106 or 116, 220, 222, 345, 348; one from Hist 381, 382, 483, Soc 430, or UH 390; Math 140 or 171; MBio 303, 304; Ph S 430; Phys 101 or 201, 102 or 202, Stat 212, 412 or Psych 311. Additional 7 hours 300-400-level Chem including Chem 331 or MBio 465 and at least 4 hours from Chem 333, 335, 347, 398, 425, 426, 495 or 499.

Designated World Languages French (40 hours): Fren 204, 306, 307, 308, or 408; two from: Fren 120, 320, 420; one from Fren 310, 350, 361; For L 440, 541; approved internship in French or study abroad in Francophone country at the advanced level.

Designated World Languages Spanish (40 hours): Span 204, 306, 307, 308, 407, 408; one from For L 101, 110, 120, 130, 220; two from Span 310, 311, 320, 321, 350, 351, 361; two from Span 450, 451, 452, 453; For L 440, 541.

Early Childhood Education (108 hours): ComST 102 or H D 205; Engl 198, 201, 301, or 302; three 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 301, 307, 321, 322, 352, 371, 385, 390, 402, 403, 405, 413, 415, 445, 483.

Earth and Space Science (67-70 hours): Geol 101 or 102 (102 preferred), 206, 210, 315, 340, 350, 499; Math 140 or 171; Phys 101; Chem 105, 106; Biol 106; Astr 345; ES/RP 174; one from Hist 381, 382, 483, Soc 430 or UH 410; Ph S 430; one from Stat 212, 412, or Psych 311; 6 hours 300-400-level (geology elective, geomorphology or oceanography recommended).

English Language Arts (42 hours): Engl 302; one fromHum 101, 103, 198, 302, 303, 304, 335, 330, 410 or 450; three from: Engl 370, 371, 372, 373; one from Engl 205, 305, 306; Engl 326, 325, 324, 323; 12 hours English or Humanities electives (3 hours must include an advisor approved writer-of-color class).

Second Term
- Endorsement2
- T & L 464
- T & L 465
- T & L 466

Hours: 9 3 3 2

Third Term
- Endorsement2
- T & L 417 (available summer only)

Fourth Year

First Term
- Endorsement2
- T & L 464
- T & L 465
- T & L 466

Hours: 9 3 3 2
Teaching and Learning

Family and Consumer Sciences (58-59 hours):
Ag Ed 440; two from AMT 210, 211, 417; HBM 258,
MBioS 130; H D 201, 202, 203, 204, 302, 310, 320,
Health and Fitness (67 hours): Ath T 266, 311;
Biol one from 102, 106, 107; Biol 140, 251; Chem
101 or 105; MBioS 130; H F 361, 484, 393, 481,
483; Mvt St 199, 262, 264, 362, 380, 415, 461, 481;
PEACT 112, 114, 132; PE 120/121; Psych 230.
History (48 hours): EconS 102; Pol S 101; Hist
101, 102, 110, 111300, 422, 469, 480; two from
Hist 230 or 231, 270 or 271, 272 or 273, 274, 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 (44 hours): Math 171, 172, 216,
220, 273, 300, 301, 303, 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/Instrumental/General (73 hours):
Mus 251, 252, 253, 254, 351, 352, 353, 354, 359,
360, 361, 455, 467, 480, 481, 482, 483, 487, 488,
489, 490, 491, 493, 494, 497. Performance Studies:
14 hours of which 2 hours must be at the 400-level.
Performance Groups: 7 hours, minimum of 1 hour
during each of seven semesters, to include at least
one semester of Mus 435 for instrumentalists and
Mus 428 for vocalists. Include a minimum of 2
hours in choral and 2 hours in performing groups.
Total performance experience (performance studies
and performing groups) must include a minimum
of 4 hours in choral/vocal music and 4 hours in
instrumental music.
Choral/General (67 hours): Mus 251, 252, 253,
254, 351, 352, 353, 354, 359, 360, 361, 455, 480,
482, 483, 488, 489, 490, 491, 497. Performance
Studies: 14 hours of which 2 hours must be at the
400 level. Performance Groups: 7 hours, minimum
of 1 hour during each of seven semesters, to include
at least 1 hour of Mus 428.
Instrumental/General (69 hours): Mus 251,
252, 253, 254, 351, 352, 353, 354, 359, 360, 361, 455,
480, 482, 487, 490, 491, 493, 494, 497. Performance
Studies: 14 hours minimum of which 2 hours must
be at the 400 level. Performance Groups: 7 hours,
minimum of 1 hour during each of seven semesters,
to include at least 1 hour of Mus 435.
Physics (64-69 hours): Astr 345; Biol 106; 430,
Chem 105, 106; one from Hist 381, 382, 483; Soc
430, or UH 390; Math 171, 172, 220, 273, 315; Phys
201 or 205, 202 or 206, 303, 304, 410, 415 or 514;
499 (4 hours includes observing Phys 101 and 102);
one from Stat 212, 412 or Psych 311; two from Phys
320, 330, 341.
Social Studies (63 hours): EconS 102; Hist 101,
102, 110, 111, 422, 480 and 12 hours of upper
division history electives w/advisor approval that
must include a non-western, a European, a U.S.
History, and an elective; Pol S 101; Soc 101; one
from Anth 101, 198, 203, 260; one from EconS 320,
327, 416, 427, 430; two from Hist 230 or 231, 270,
272 or 273, 275; one from Hist 319, 495, Anth 309;
one from Hist 469, Soc 320; one from Pol S 300, 316,
427, 450, 455, Crm J 320; two from Anth 307, 316,

320, 330, 331, 350, Psych 310, 324, 361, 470, Soc
320, 351, 384, 430.
ADD-ON ENDORSEMENTS
Anyone wishing to add an endorsement to a valid
Washington State teacher certificate must make
application to the WSU add-on endorsement program. The application and more information can
be found on the College of Education’s website
(http://education.wsu.edu/studentservices/endorsements ). The following endorsements are available
as add-on endorsements only. Individuals may be
recommended for endorsement in bilingual education, English Language Learners, reading, middle
level science, middle level mathematics, science, or
special education concurrently with completion of
endorsement requirements in elementary education
or one of the specific subject endorsements listed
above, or as an endorsement added to a currently
valid teacher certificate.
Bilingual Education (21 hours): T&L 333 or
510, 339 or 549, 401 or 501, 509, 411, 414 or 514
and 509; one from T&L 504 (highly recommended),
512, 516, 537, 574, 580. Demonstrated proficiency
in a language other than English by passing the
oral and written proficiency tests of the American
Council on the Teaching of Foreign Language
(ACTFL) at the advance mid-level.
English Language Learners [undergraduate
level] (18 hours): T&L 333, 339, 401, 414 509; one
from T&L 504 (highly recommended), 512, 516,
537, 574, 580.
English Language Learners [graduate level]
(18 hours): T&L 501, 509, 510, 514, 549; one from
T&L 512, 516, 504, (highly recommended), 537,
574 or 580.
Middle Level Mathematics (15 hours): Math
151, Math 303, Math 351, T&L 426, 427.
Middle Level Science (17 hours): Chem 101,
Biol 107, Phys 150, Sci 430, T&L 513.
Reading [undergraduate level] ( 20+ hrs): T&L
528, T&L 551, T&L 553, T&L 558; T&L 307, 322,
413.
Reading [graduate level] (20+ hours): T&L 528,
551, 553, 558; one from T&L 307, 532, 544, 547,
548, 552; one from T&L 322, 538, 546, 556; one
from T&L 413, 505, 507, 537.
Science (hours vary): The candidate must complete
a full endorsement in biology, chemistry, physics, or
earth and space science, plus the following courses,
if not included in the full endorsement: one 3-4
credit Astronomy course; Chem 345; two from Geol
102, 210, 323 or 390; Biol 107.
Special Education [undergraduate level] (31
hours): SpEd 301, 401, 402, 403, 404, 409, 421, 440,
470, 490 (4 credits).
Special Education [graduate level] (31 hours):
SpEd 301, 501, 502, 503, 504, 509, 521, 540, 571,
590 (4 credits).

Description of Courses
SPECIAL EDUCATION
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.

279

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//. 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 V 2-3
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
either 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 (0-3)
to 3 (0-9) May be repeated for credit; cumulative
maximum 8 hours. Supervised field experience
in special education. S, F grading.
499 Special Problems V 1 (0-3) to 4 (0-12) May
be repeated for credit. S, F grading.


501 Teaching Students with Disabilities 3 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 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 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 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 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.

520 Teaching in Inclusive Classrooms V 2-3 Graduate-level counterpart of Sp Ed 420; additional requirements. Credit not granted for both Sp Ed 420 and 520.

521 Inclusion Strategies for Special Education Teachers 3 3 Prereq either Sp Ed 401/501 or c//. Graduate-level counterpart of Sp Ed 421; additional requirements. Credit not granted for both Sp Ed 421 and 521.

522 Topics in Special Education V 1-4 May be repeated for credit; cumulative maximum 8 hours. Recent research developments, issues and/or applications in selected areas of special education.

540 Methods in Intensive Educational Supports 3 3 Prereq either Sp Ed 301, Sp Ed 420/520 or c//. Graduate-level counterpart of Sp Ed 440; additional requirements. Credit not granted for both Sp Ed 440 and 540.

541 Foundations of Education of Children with Hearing Loss 2 2 Prereq admission to Preparing Educators of Children with Hearing Loss program. Historical and contemporary forces impacting education of children with hearing loss with emphasis on technology.

542 Development of Language for Teachers of Children with Hearing Loss 3 3 Prereq admission to Preparing Educators of Children with Hearing Loss program. Language from birth through school-age with emphasis on development and relationship of pragmatics, semantics and syntax.

543 Teaching Speech to Children with Hearing Loss 3 3 Prereq admission to Preparing Educators of Children with Hearing Loss program. Strategies for assessing, developing and remediating the speech of children with hearing loss.


545 Curriculum for Children with Hearing Loss 3 3 Prereq admission to Preparing Educators of Children with Hearing Loss program. Strategies for modifying and adapting instruction in academic areas to meet the needs to students with hearing loss.

546 Working with Parents of Children with Hearing Loss 3 3 Prereq admission to Preparing Educators of Children with Hearing Loss program. Impact of hearing loss on parents and strategies for helping parents cope at various stages of their child’s life.

571 Prevention and Remediation of Reading Disabilities 3 3 Prereq either Sp Ed 301, Sp Ed 420/520, or c//. Theoretical concepts, research, and strategies of reading assessment and instruction for students with disabilities.

589 Seminar in Disability Studies 3 Current research, issues, trends in disabilities within the broader context of education, society, history.

590 Practicum in Special Education V 1-4 May be repeated for credit; cumulative maximum 8 hours. Supervised experiences in application of theories and practices in special education. S, F grading.


592 Single Subject Research Design and Methods 3 Prereq doctoral student. In-depth study of single subject research designs; critical analysis of strengths and weaknesses of each design.

593 Diversity Issues in Special Education: Theory, Research and Practice 3 Prereq doctoral student. Diversity issues in special education examined and critically reflected upon for future use and practice.

594 Prevention and Intervention for Emotional and Behavioral Disorders (EBD) 3 Prereq doctoral student or by permission of instructor. Cross-disciplinary perspectives on preventing mental, emotional, and behavioral disorders; analysis of evidence- based practices, research to practice gap, implementation and sustainability.

595 Universal Design 3 Prereq doctoral student. Factors associated with developing, implementing and assessing curricular materials for individuals with disabilities.

596 Seminar in Quality Indicators for Research in Special Education 1 Prereq doctoral student. Co-requisite for research courses offered to all doctoral students.

600 Special Projects or Independent Study V 1 (0-3) to 8 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

TEACHING AND LEARNING

301 Learning and Development 3 Prereq Psych 105. Analysis of the connections among learning theories, human development theories, and educational practice in today’s PK-12 classrooms.

305 Fundamentals of Instruction 2 Prereq T&L 301. For candidates admitted to teacher preparation. Introduction to lesson and unit plans, state standards, instructional models, and basic strategies for using and integrating technology.

306 [M] Survey of Elementary Reading and Language Arts 3 Prereq T&L 301. For candidates admitted to teacher preparation. Attitudes, knowledge, and skills needed for successful teaching of reading and language arts.

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.


317 Initial Practicum Experience 2 Prereq T&L 301. Classroom experience providing observation, reflection and gradual classroom involvement and teaching responsibility. 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 and guide 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.

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.

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. S, F grading.

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. S, F grading.

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 teaching 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.

413 Introduction to ESL for K-8 Teachers V 2-3
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.

426 Middle Level Mathematics Methods 3
Prereq Math 251; T & L 352 or 564. Research-based and standards-aligned methods for teaching mathematics in the middle grades.

427 Proportional Reasoning 3
Prereq Math 251; T & L 352 or 564. Examination of work samples; identifying student's incomplete understanding of fundamental concepts; design instruction to develop a deeper understanding of rational numbers.

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.

464 Curriculum, Instruction and Content Literacy Methods 3
Prereq T & L 301, 317; c// 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 301, 317; c// 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 301, 317; c// 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.

467 [M] Diversity, Classroom Life and Management 3
Prereq T & L 464, 465, 466; c// T & L 468, 469; admission to the teacher preparation program. Diversity, community building and classroom management and their interrelationships in secondary schools, and educational/legal issues on physical/sexual abuse.

469 Advanced Practicum 2
Prereq T & L 464, 465, 466; c// EdPsy 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 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.

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 Tkel 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 Global Geography 3
Open to non-education majors. World geography as a global perspective; education in the contemporary world: the interaction between human societies and the natural environment.

490 Advanced Practicum V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 8 hours. Prereq certified education major; T & L 402; T & L 405. Intensive practicum integrating educational theory with teaching in classroom contexts. S, F grading.

497 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 2-3
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.

512 Language and Cultural Factors in Mathematics 3 Prereq graduate standing. Research and instructional strategies related to linguistic and cultural influences on learning math.

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 V 2-3 Contemporary issues in management of elementary, middle school, and secondary classrooms; issues of abuse.

526 Research in Multicultural Education 3 Prereq either T & L 513 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 Literacy within the Disciplines 3 Explores literacy research and practices that enhance the learning of various disciplines taught in K-12 settings.

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 or 3 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 Theory and classroom applications for selecting and using literature and storytelling in content areas; reading, writing, language development, the arts.

533 Middle Level Mathematics Pedagogy and Philosophy 3 Middle-school philosophy; understanding of effective standards and research-based instructional methods.

535 Gender, Power and Education 3 Interdisciplinary focus on the relationships among gender, power and education.

536 Cultural Studies in Education 3 Historical and conceptual background of the field of cultural studies.

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 V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq completion of ProCert application, Provisional Status/Employer Support verification (WAC 180-78A-505), and 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 V 1-3 May be repeated for credit; cumulative maximum 6 hours. 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 V 1-3 May be repeated for credit; cumulative maximum 6 hours. 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.

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 2-3 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 4 (3-3) Prereq T & L 307; T & L 321; T & L 322; T & L 551. Evaluation techniques and instructional practices for impacting the reading achievement of K-8 students.

554 Sociolinguistics 3 Prereq doctoral student. Interaction between language use and sociopolitical and cultural contexts; cultural and linguistic delivery and educational opportunity.

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.

559 Readings in Cultural Studies and Social Thought in Education 1 May be repeated for credit; cumulative maximum 3 hours. Current scholarship in the field of cultural studies in education and practices of schools.

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.

564 Elementary School Mathematics 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.

569 Critical Analysis of Children's and Young Adult Literature 3 Prereq doctoral student. Multicultural analysis of children's and adolescent literature and its pedagogical and sociopolitical implications and possibilities.

570 Theory and Research in Electronic Literacies 3. Ideas of literacy and effects of technology on literacy and policy, particularly those issues addressing diverse learners.

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.

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.

575 Globalization and Identity in Education 3 Issues relating to the complexities of globalization and identity in education.

576 Youth Cultures in Education 3 Analysis of how youth cultures operate in society and how they are practiced in schools.

577 Curriculum Theory 3 Curriculum theory as the interdisciplinary study of educational experience.

580 Multicultural Education in a Global Society 3 Graduate-level counterpart of T & L 480; additional requirements. Credit not granted for both T & L 480 and 580.

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.

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 (0-2) to 6 (0-18) May be repeated for credit; cumulative maximum 12 hours. By interview only. Opportunities in professional positions. S, F grading.

592 Social Theory in Education 3 Prereq doctoral student. Social theory and how it applies to intellectual work in education.

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 May be repeated for credit; cumulative maximum 12 hours. Prereq graduate standing or permission of instructor. Advanced study of research, practice, and contemporary issues in education.

597 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. S, F grading.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.
Theatre Courses

160 [H] Introduction to Theatre 3 Drama as prepared and presented for cinema, television, and stage.

163 Theatre Technology: An Introduction 3 (2-3) Introduction to the technical support for theatrical productions: scenery, lighting, sound, costumes; instruction and practical application with WSU theatre productions.

260 Performance I: Acting 3 (0-6) The creative process of acting from experiential standpoint combined with exercises in interpersonal communication and critical thinking.

261 Performance I: Directing 3 (0-6) Study of the principles, procedures, and practices of stage direction; weekly performance exercises culminating in directing a ten-minute play.

264 Stage Makeup 2 (0-6) Basic techniques in the design and execution of makeup for the stage and television.

294 Stage Speech 1 (0-6) May be repeated for credit; cumulative maximum 6 hours. Advanced patterning and draping techniques; beginning tailoring including dyeing, printing and distressing.

360 Performance II: Acting 3 (0-6) Prereq Theat 260, by interview only. Acting together with practical experience working with student directors and guiding the actor toward structuring a role for performance.

361 Performance II: Directing 3 (0-6) Prereq by interview only. Advanced work in stage direction; weekly exercises focusing on period drama and culminating in directing a one-act play.

362 Script Analysis 3 For directors, designers, performers. Exploration of various methods available for analyzing stage and film scripts. E-mail and Web access required.

363 Lighting for Theatre and Television 3 (2-3) Prereq Theat 163 or by interview only. Stage lighting design and technology; lighting instruments, control systems, principles of optics, color and electricity; practical applications with WSU productions.

364 Scenery: Construction and Painting 3 (2-3) Prereq Theat 163. Constructing and painting scenery; advanced methods for shifting scenery and creating special effects; materials and techniques for the scenic artist.

365 [H] Theatre History I: Beginnings to 1700 3 Development of theatre and drama from its beginning to 1700; major trends, plays, playwrights, actors, architecture, scenery, and costumes.

366 [H] Theatre History II: 1700 to 1900 3 Development of theatre and drama from approximately 1700 to 1900; major developments in theatre arts and dramatic literature.

367 [H] Musical Theatre 3 Survey of musical theatre from Vienna to Broadway, lyric drama from Mozart to the present.

368 Illustration and Rendering Techniques 3 (0-6) Same as AMT 368.

370 Costume Construction I 3 (0-6) May be repeated for credit; cumulative maximum 6 hours. Construction and sewing techniques for theatrical costume including corset and hat making.

371 Costume Construction II 3 (0-6) May be repeated for credit; cumulative maximum 6 hours. Advanced patterning and draping techniques; beginning tailoring including dyeing, printing and distressing.

402 Production Analysis 1 (0-3) May be repeated for credit; cumulative maximum 6 hours. Analysis and comparison of theatre productions through discussion and written evaluation. Credit not granted for both Theat 402 and 502.

450 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.

460 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.

461 Performance III: Directing 3 (0-6) Prereq by interview only. Advanced work in stage direction; weekly exercises focusing on modern, non-realistic theatrical forms and culminating in directing a one-act play. Credit not granted for both Theat 461 and 561.

462 Visual Communication in Theatre, Film and Television 3 Analysis of the visual aspects of theatre, film and television applying research in perceptual psychology.

464 Creative Drama 3 Philosophy and techniques of informal drama; practical experience integrated into the curriculum; emphasis on application to educational setting. Cooperative course taught by WSU, open to UI students (THE 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 (0-12) 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 (0-3) to 4 (0-12) 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.

University College

http://universitycollege.wsu.edu
French Administration, Room 436
509-335-8044
509-335-5507 for First-year Courses

Mary F. Wack, Dean.

The University College is a non-degree-granting college that supports all undergraduates at WSU. There are no admission requirements; any student can access the various programs and courses offered by the college. One- and two-credit courses are designed to fit student schedules and can be paired with other University College courses or courses in the major for high-impact learning. Overall, the curriculum assists students in gaining the skills for effective decision-making to manage key transitions of the college years: from high school or a community college to a research university, transition into a major, and transition from college into a career and a life of personal fulfillment. Active and collaborative learning environments develop teamwork and leadership skills while also fostering positive relationships with a diverse community of peers, faculty, and advising staff. Students’ progress in their degree programs is supported by these courses’ focus on developing critical thinking, analytical, and information skills, as well as by their strong written and oral communications components. Frequent reflective assignments assist students in integrating their college experiences with their developing sense of personal and social responsibility and self-direction.

The University college offers personalized support for students intending careers in the Health Sciences, with special course sections, workshops, clubs, and career-oriented advising.

Global Leadership Certificate:

The University College also offers the Global Leadership Certificate, in partnership with the
Global Studies Program in International Programs. The Global Leadership Certificate is structured around coursework and co-curricular experiences that empower students to analyze, adapt, communicate, problem-solve, and empathize in a variety of professional and personal networks. Taken together, the academic and co-curricular components build self-reliance, leadership and team skills in a global framework.

Requirements for the Global Leadership Certificate

1) Four (4) Courses (12 credits)
Selected coursework should address contemporary global/intercultural issues and be aligned with the three objectives/competency areas. Courses taken during a study abroad experience may also count for this requirement. Up to four credit hours of foreign language at or above the 200 level may be applied. Courses approved for inclusion in the program may address contemporary issues, involve a language and culture different from student’s immediate context, and/or be concerned with issues that cross national borders or international regions.

2) Leadership and Experiential Learning (2 credits; UC 497)
All students will take UC497 “Peer Leadership” for 1 credit. Students will fulfill the remaining experiential requirement (1 credit) in one of two ways:
A. Intensive International/Intercultural/Civic Engagement Experience: An international or domestic immersion experience such as study abroad, internship, exchange program, alternative spring break, service learning, eco adventure, or research experience. The intensive experience must be of at least one week’s duration and satisfy academic requirements for one credit. The experience will involve at least 45 hours of learning to satisfy the academic requirements for one credit.
OR:
B. Sustained “Globalization at home” Intercultural/Civic Engagement Experience: Local service learning experiences with an ethnic/national population or with local/global issues such as poverty, hunger, health, community development, or sustainability. These experiences may be complemented by attendance at intercultural or civic engagement events (lectures, international student group celebrations, Common Reading Program activities, community group events, etc.) and through reflection activities for a total of 45 hours to satisfy the academic requirements for one credit.

3) Integrative Capstone Project (1 credit, UC 491)
For additional information, contact the Director of the Global Studies Program in the International Programs Office.

Description of Courses

UNIVERSITY COLLEGE

UCOLL

100 College Majors and Career Choice 1 Career development and the decision-making process; exploration of academic majors and careers.
Credit not granted for UColl 100 and 101.

101 College Majors and Career Choice 1 Prereq by referral for special programs. Career development and the decision-making process; exploration of academic majors and careers. Credit not granted for UColl 100 and 101.

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.

300 Accessing Information for Research 1 Effective research strategies in the disciplines, including emerging information resources, such as Internet.

301 College Major and Career Planning 1 Prereq junior standing; certified in a major. Assistance in developing effective major, career, and graduate school management approaches.

302 Advanced Writing Tutorial V 1 (0-3) to 2 (0-6) May be repeated for credit; cumulative maximum 6 hours. Prereq c// in a Writing in the Major course or a course that assigns writing. Assigned tutorials in the WSU Writing Lab, S, F grading.


304 Seminar in Focused Exploration and Leadership 2 Prereq 30 semester hours. Seminar designed for students in transition to become better acclimated to the university environment and to aid in achieving academic and personal success.

491 Integrative Capstone I 1 Prereq completion of all other GLC program requirements. Integrative culminating experience for university-wide interdisciplinary programs.

497 Peer Leadership V 1-4 May be repeated for credit; cumulative maximum 9 hours. Development of leadership and interpersonal skills for specific peer leadership and paraprofessional positions. S, F grading.

College of Veterinary Medicine

www.vetmed.wsu.edu
Bustad 110
509-335-1531

The College of Veterinary Medicine offers courses of study leading to the degrees of Doctor of Veterinary Medicine, 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 generally necessary to obtain the degree of Doctor of Veterinary Medicine (DVM). Most successful applicants have completed four years of a preprofessional undergraduate program. The first three years of preclinical training can be taken at any institution having courses equivalent to those taught at Washington State University. Following undergraduate studies, a student then takes four years of professional study directed by the College of Veterinary Medicine.

Applicants for admission to the College of Veterinary Medicine must present at least 64 semester hours of acceptable prerequisite credits from an accredited college or university, exclusive of military training and physical education. The 64 semester hours should include: 37 hours of science prerequisites, including zoology or general biology, inorganic and organic chemistry, biochemistry, physics, mathematics, genetics, and statistics; and the following 27 hours of General Education Requirements (GER): 9 hours of social science and arts and humanities, 3 hours of English composition; 3 hours of communication (written or verbal); and 12 hours of world civilizations or intercultural studies, which can include second language courses.

Courses designed to fit these requirements are offered by Washington State, and the number of students admitted to preprofessional 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 preprofessional 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. However, many successful applicants major in animal science, biology, chemistry, microbiology, neuroscience, wildlife, zoology, or other science-related fields.

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 Office of Student Services, 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 (https://adds.vetmed.wsu.edu/Admissions). Deadline for submission of applications is October 1. A $60 application/processing fee will be assessed as part of completing the WSU supplemental application. The Admissions Committee, 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 April 15. Successful applicants who are not currently enrolled at WSU will be asked to fill out a uniform undergraduate application for admission to WSU. Unsuccessful 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 (WCHE) Compact states
• To all other qualified students
HONORS PROGRAM FOR SELECTED STUDENTS

A special program for admission of highly selected and academically qualified students to the Washington State University College of Veterinary Medicine has been established with the WSU Honors College. 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 a designed curriculum. It consists of three years of a unique undergraduate preprofessional 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 preprofessional 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 the number of positions is limited.

Combined Program in Animal Sciences 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 (137 HOURS)

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 Year

First Term Hours
V M 510P 5
V M 511P 5
V M 513P 4
V M 568P 2

Second Term Hours
V M 512P 3
V M 520P 3
V M 521P 3
V M 534P 3
V M 545P 3
V M 580P 1

Second Year

First Term Hours
V M 522P 2
V M 535P 3
V M 536P 4
V M 546P 6
V M 589P 3

Second Term Hours
V M 523P 3
V M 537P 4
V M 543P 2
V M 561P 2
V M 587P 3
V M 588P 3

Third Year

First Term Hours
V M 560P 1
V M 572P 3
V M 576P 1
V M 590P 1
V M 591P 1

Second Term Hours
V M 598P 1
V M 590P 1
V M 576P 1
V M 571P 2
V M 572P 4
V M 576P 1
V M 589P 2

Fourth Year

First Term Hours
V M 600P 1
V M 606P 2
V M 607P 2
V M 608P 2
V M 628P 2
V M 629P 2

Second Term Hours
V M 630P 2
V M 645P 3
V M 674P 1
V M 675P 2
V M 690P 2
V M 691P 4
V M 699P 1

Fourth Year

The fourth year begins immediately after the end of the spring semester of the third year (May) and continues for 12 consecutive months. Fourth-year professional students are required to enroll in course work for a minimum of 44 weeks of their final year. All students must participate in mandatory clinical rotations in the large- and small-animal clinics, including emergency services and anesthesia. In addition, each student must select elective opportunities in their area of interest. All students must prepare and present a senior paper under faculty supervision.

Description of Courses

VETERINARY MEDICINE

350 Skeletal Preparation 1 May be repeated for credit; cumulative maximum 3 hours. Prereq V M 511P. Technique of skeletal preparation is mastered by undertaking and completing a project. Skeleton becomes property of student. S, M, F grading.

394 Veterinary Medicine as a Career 2 Prereq junior standing; cumulative GPA of 3.00 or higher; MBioS 303 or c//. Current issues in veterinary medicine; ethical, financial and personal aspects of the veterinary practice. S, F grading.

499 P Special problems V 1 (0-3) to 4 (0-12) May be repeated for credit. Prereq DVM program. S, M, F grading.

500 P Animals, Society, and the Veterinarian 1 Active participation in activities designed to enhance personal growth, character development and leadership skills. S, M, F grading.

501 P International Veterinary Medicine 1 Prereq veterinary medicine students. Important issues and constraints facing the global community. S, M, F grading.

502 P Communication Skills V 1-3 Prereq veterinary medicine student. Exercises designed to enhance communication and relational skills. S, M, F grading.

504 P Global Field Studies V 1 (0-3) to 6 (0-18) Prereq V M 501P; V M 502P; V M 503P; veterinary medicine student. Preceptorship in the US or Overseas, under direct supervision of veterinarian, agriculture or public health professional; related to international veterinary medicine. S, M, F grading.

505 P Reverence for Life 1 (0-2) Prereq veterinary medicine students. Connections between humans and animals; discussions related to use of animals in Western societies; social issues related to veterinary medicine. S, M, F grading.

508 P Research Orientation and Resource 1 Prereq 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 1 May be repeated for credit; cumulative maximum 3 hours. Prereq 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 4 (3-3) Prereq 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 5 (0-15) Prereq 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.


513 P Veterinary Cell Physiology 4 Prereq 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.


520 P Veterinary Physiology 5 (4-3) Prereq V M 510P. Physiology of domestic animals. Cooperative course taught by WSU, open to UI students (VS 511). S, M, F grading.

521 P Introduction to Veterinary Neurology 3 (2-3) Prereq V M 510P. Neuroanatomical and neurophysiological bases of veterinary neurology, emphasizing central and peripheral sensory and motor systems. S, M, F grading.


523 P Veterinary Toxicology 3 Prereq V M 522P. Pharmacology and toxicology of the systems of domestic animals. Continuation of V M 522P. 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.

526 P Domestic and Exotic Animal Behavior 2 (1-3) Prereq veterinary medicine student. Advanced study of animal behavior, emphasizing difference between exotic and domestic animal behavior. Cooperative course taught by WSU, open to UI students (ZOOL 526). 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.


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.

545 P General Pathology 3 (2-3) Prereq V M 520P. Structural and functional alterations in disease; elementary oncology. Cooperative course taught by WSU, open to UI students (VS 445). S, M, F grading.


554 P Surgery Laboratory I 1 (0-3) Prereq c// in V M 553P. Surgical exercises using small animals. S, M, F grading.

555 P Small Animal Clinical Problem Solving 2 Prereq DVM student or graduate student in veterinary science. Case-based investigation of small animal clinical presentations, diagnosis, and treatment plans. 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.

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.

562 P Complementary and Alternative Veterinary Medicine 1 Prereq veterinary medicine student. Presentation of complementary and alternative veterinary medicine theories and techniques. 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.


576 P Emerging and Exotic Diseases of Animals 1 Prereq veterinary medicine student. To increase understanding of emerging and exotic diseases of animals among veterinary students. 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 Agricultural Animal Problems Seminar 1 (0-3) May be repeated for credit; cumulative maximum 6 hours. Prereq veterinary medicine student, DVM or graduate standing. Investigation of current herd problems and evaluation of emerging animal agricultural issues. S, M, F grading.

582 P Agricultural Animal On-Farm Clinical Experience 1 (0-3) May be repeated for credit; cumulative maximum 3 hours. Prereq veterinary medicine student, DVM or graduate standing. On-farm investigation of individual and herd problems and on-farm provision of professional service. S, M, F grading.

583 P Epidemiology 2 Prereq veterinary medicine student. Minimally quantitative survey in which health is framed as a population phenomenon. S, M, F grading.


585 P Clinical Anesthesiology 2 (1-3) Prereq veterinary medicine student. Clinical anesthesiology for the professional veterinary student. S, M, F grading.


588 P Veterinary Clinical Nutrition V 1-3 May be repeated for credit; cumulative maximum 3 hours. Large and small animal clinical nutrition; nutrient composition; nutritional diseases and practical feeding methods. S, M, F grading.


592 P Internship in Veterinary Medicine V 1 (0-3) to 3 (0-9) Prereq DVM student or graduate student in veterinary science. Work experience related to academic learning; under supervision of veterinary professionals and/or faculty. S, M, F grading.

593 P Special Topics V 1-4 May be repeated for credit; cumulative maximum 15 hours. Prereq veterinary medicine student, DVM or graduate standing. Professional leadership skill development for veterinarians. S, M, F grading.

594 P Small Animal Clinical Neurology 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 Small Animal Clinical Neurology Service in the Small Animal Clinic, Veterinary Teaching Hospital. S, M, F grading.

595 P Small Animal Soft Tissue Surgery 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 Small Animal Soft Tissue Surgery Service in the Small Animal Clinic, Veterinary Teaching Hospital. S, M, F grading.

596 P Special Topics V 1-4 May be repeated for credit; cumulative maximum 15 hours. Prereq veterinary medicine student, DVM or graduate standing. Special topics in veterinary medicine. S, M, F grading.

597 P Introduction to Clinics 1 (0-3) Prereq veterinary medicine student. Introduction to the practice of clinical veterinary medicine and surgery within the Veterinary Teaching Hospital including records, presentation and protocol. S, M, F grading.

598 P Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. S, M, F grading.


600 P Clinical Elective at Oregon State University V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Clinical medicine training in diseases of food animals and horses; clinic rounds and diagnostic procedures. S, M, F grading.

601 P Small Animal Community Practice Medicine V 1 (0-3) to 4 (0-12) Prereq veterinary medicine student. Required clinical experience with the small animal community practice service in the small animal clinic of the Veterinary Medicine Hospital. S, M, F grading.

602 P Small Animal Referral 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 Small Animal Medicine Referral Practice Service in the Small Animal Clinic of the Veterinary Teaching Hospital. S, M, F grading.

603 P Exotic Animal Medicine - Speciality Practice 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 in a specialty practice area of small animal clinical medicine or surgery. S, M, F grading.

604 P Veterinary Clinical Nutrition V 1-3 May be repeated for credit; cumulative maximum 3 hours. Large and small animal clinical nutrition; nutrient composition; nutritional diseases and practical feeding methods. S, M, F grading.


606 P Small Animal Referral Medicine V 1 (0-3) to 4 (0-12) Prereq veterinary medicine student. Required clinical experience with the small animal referral medicine service in the small animal clinic of the Veterinary Medicine Hospital. S, M, F grading.

607 P Small Animal Soft Tissue Surgery V 1 (0-3) to 4 (0-12) Prereq veterinary medicine student. Required clinical experience with the soft tissue surgery 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 14 (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.
621 P Clinical Cardiology V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 4 hours. Prereq veterinary medicine student. Basics in physical assessment, diagnosis and treatment of common cardiac disorders. S, M, F grading.

628 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.

629 P Equine Medicine Clinical Rotation V 2 (0-6) to 6 (0-18) Prereq veterinary medicine student. Required rotation through the Equine Medicine Services of the Veterinary Teaching Hospital. S, M, F grading.

630 P Agricultural Animal Clinical Rotation V 2 (0-6) to 6 (0-18) Prereq veterinary medicine student. Elective rotation for Agricultural Animal Medical, Surgical, and Ambulatory Service of the Veterinary Teaching Hospital. S, M, F grading.

631 P Population Medicine V 1 (0-3) to 4 (0-12) Prereq veterinary medicine student. Elective rotation for agricultural animal species emphasis through the population medicine laboratory of the Veterinary Teaching Hospital. S, M, F grading.

632 P Large Animal Theriogenology V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Elective clinical theriogenology subjects in large animals. S, M, F grading.

633 P Agricultural Animal Medicine/Surgery V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Elective clinical subjects in food animal diseases and herd health/preventive medicine. S, M, F grading.

635 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, 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 student. 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.

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.

657 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 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 V 1 (0-3) to 4 (0-12) Prereq veterinary medicine student. Laboratory diagnosis and pathology of avian (pet bird and commercial fowl) diseases. S, M, F grading.

698 P Special Topics V 1-4 May be repeated for credit; cumulative maximum 15 hours. Prereq veterinary medicine student, DVM or graduate standing. Special clinical topics or opportunities in veterinary medicine. 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.

Department of Veterinary and Comparative Anatomy, Pharmacology, and Physiology

www.vetmed.wsu.edu/depts-vcapp

Wegner 205
509-335-6624


The Department of Veterinary and Comparative Anatomy, Pharmacology and Physiology offers a course of study leading to the degrees of Master of
Science and Doctor of Philosophy in Veterinary Science. These degrees are designed to provide broad training in specific aspects of veterinary science and related disciplines to prepare students for careers in teaching, research, and service. The curriculum is research intensive emphasizing the acquisition of theoretical understanding of a field and or research skills in preparation for a career in teaching and research. The veterinary science degree allows for maximum flexibility within the curriculum. Students will design their degree plan in consultation with a faculty mentor, emphasizing the specialty fields of anatomy, pharmacology or physiology. It is required that a student contact and arrange for a faculty mentor prior to admission to the program.

The objectives for the Ph.D. level training are to prepare the candidate for a career as an independent investigator (i.e., can compete for extramural private and federal funds as the principal investigator).

Applicants are offered admission on a rolling basis, but may be notified of acceptance as late as April 15. Students may still apply for admission after December, but graduate stipends may not be available for late applicants.

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**Description of Courses**

**VETERINARY PHYSIOLOGY AND PHARMACOLOGY**

V Ph


499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. Cooperative course taught jointly by WSU and UI (VS 404). 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.

555 General and Cellular Physiology 4 (3-3) Prereq MBioS 303 or c//; MBioS 513. Physiomechanisms of cellular function.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. Cooperative course taught jointly by WSU and UI (VS 504). S, F grading.

700 Master's Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. For MS in veterinary science only. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. For PhD in veterinary science only. S, F grading.

**Department of Veterinary Clinical Sciences**

[www.vetmed.wsu.edu/depts-vcv](http://www.vetmed.wsu.edu/depts-vcv)

ADBF 1020 509-335-0738


**Description of Courses**

**VETERINARY CLINICAL MEDICINE AND SURGERY**

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 Nilson University Seminar 2 (1-3) Prereq fourth or fifth year veterinary DVM students from Nilson University. Lectures and laboratory sessions in small animal, exotic animal, and equine veterinary medicine and surgery. S, F grading.

499 Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit. Cooperative course taught jointly by WSU and UI (VS 404). S, F grading.

565 Oncology Journal Seminar 1 May be repeated for credit; cumulative maximum 6 hours. Prereq DVM or graduate standing. Small group discussion of veterinary literature, peer-reviewed literature and textbooks covering biological basis of cancer diagnosis, therapy and treatment. 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.

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 (0-2) 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 May be repeated for credit; cumulative maximum 6 hours. 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 or graduate standing.

584 Comparative Theriogenology 1 Prereq DVM degree or graduate standing. May be repeated for credit; cumulative maximum 12 hours. Lectures from WSU College of Veterinary Medicine and Department of Animal Sciences and from UI Department of Animal and Veterinary Sciences.

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 or graduate standing. 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 or graduate standing. 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 May be repeated for credit; cumulative maximum 6 hours. Prereq DMV degree or equivalent. Critical review of current topics in veterinary anesthesia.

596 Advanced Radiology 2 (1-3) May be repeated for credit; cumulative maximum 12 hours. 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 1-2 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.

599 Critical Analysis of Veterinary Medicinal Information: Illusional Medicine 1 May be repeated for credit; cumulative maximum 6 hours. Prereq DVM or graduate standing. Weekly small group discussion, lecture and critical analysis of medical information.

600 Special Projects or Independent Study V 1 (0-3) to 18 (0-54) May be repeated for credit. Cooperative course taught jointly by WSU and UI (VS 504). S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. For MS in veterinary science only. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for 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


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 purses publications of intermediate technical difficulty and advanced textbooks.

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 V 1 (0-3) to 18 (0-54) May be repeated for credit. Cooperative course taught jointly by WSU and UI (VS 504). S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. For MS in veterinary science only. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1 (0-3) to 18 (0-54) May be repeated for credit. For PhD in veterinary science only. S, F grading.

VETERINARY PATHOLOGY

V Pa

501 Case-based Learning in Veterinary Pathology V 1 (0-3) to 3 (0-9) Prereq second year veterinary medicine or DVM. Principles of pathophysiology, infectious disease, laboratory diagnosis, zoonoses, and food safety learned through the development of multistep teaching cases, S, F grading.

525 Introductory Readings in Veterinary Pathology 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. Supervised introductory readings of publications, books, and research proposals.

542 Advanced Diagnostic Pathology V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq V M 546P. Necropsy laboratory for techniques and skills in performing and interpreting necropsy material.

through the General Studies Program. A Women's Studies minor and Queer Studies minor are also available. The Department of Women's Studies at WSU is also at the forefront of the field of LGBT/Queer Studies in the Inland Northwest.

**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 DEGREE PROGRAM (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**
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Science Elective (GER) 4
- W St 200 [S,D] (GER) 3

**Second Term**
- 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 Elective 3

#### Second Year

**First Term**
- Communication Proficiency [C,W] (GER) 3
- Math Proficiency [N] (GER) 3
- W St 300 [S,M] (GER) 3
- W St Humanities Elective 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 Electives 3
- Prepare for Women's Studies Internship (W St 410)

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

1 Consult advisor.

### Minors

#### Queer Studies

A minimum of 16 hours including a core of W St 200, 369, 484, and 485. In addition, four elective hours selected from W St 210, 300, 317, 410, 481, 499. At least 9 hours must be in upper-division work and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

#### 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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>W St 150</td>
<td>[S,D] Marital and Sexual Life Styles</td>
<td>3</td>
</tr>
<tr>
<td>W St 200</td>
<td>[S,D] Gender and Power: Introduction to Women's Studies</td>
<td>3</td>
</tr>
<tr>
<td>W St 210</td>
<td>[H] Diverse Sexualities and Cultural Production</td>
<td>3</td>
</tr>
<tr>
<td>W St 214</td>
<td>[S,D] Gender and Culture in America</td>
<td>3</td>
</tr>
<tr>
<td>W St 216</td>
<td>[S,D] American Cultures</td>
<td>3</td>
</tr>
<tr>
<td>W St 230</td>
<td>Human Sexuality</td>
<td>3</td>
</tr>
</tbody>
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## Minors

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### 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

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<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>W St 150</td>
<td>[S,D] Marital and Sexual Life Styles</td>
<td>3</td>
</tr>
<tr>
<td>W St 200</td>
<td>[S,D] Gender and Power: Introduction to Women's Studies</td>
<td>3</td>
</tr>
<tr>
<td>W St 210</td>
<td>[H] Diverse Sexualities and Cultural Production</td>
<td>3</td>
</tr>
<tr>
<td>W St 214</td>
<td>[S,D] Gender and Culture in America</td>
<td>3</td>
</tr>
<tr>
<td>W St 216</td>
<td>[S,D] American Cultures</td>
<td>3</td>
</tr>
<tr>
<td>W St 230</td>
<td>Human Sexuality</td>
<td>3</td>
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</tbody>
</table>
Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

History of Women in American Society 3 Same as Hist 298.

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.

Contemporary Masculinity and Men's Issues 3 Analysis of the development of masculinity in its biological and cultural forms.

Gender and Politics 3 Same as Pol S 305.

Introduction to Literary Criticism 3 Same as Engl 308.

Women Artists I, Middle Ages-1900 3 Same as F A 308.

Women Writers 3 Same as Engl 309.

Women Artists II, Twentieth Century 3 Same as F A 310.

Women in Management and Leadership 3 Analysis of women's historical and contemporary role in American management.

Gender in Cross Cultural Perspective 3 Same as Anth 316.

Gay and Lesbian Literature 3 Same as Engl 317.

Resource Management, Consumerism, and Problem Solving 3 Prereq 6 hours of social science; sophomore standing. Same as H D 320.

Topics in Women's Studies V 1-3 May be repeated for credit; cumulative maximum 9 hours. Focused study of subjects/issues relating to women.

Gender and Love in East Asian Culture 3 Same as Chin 321.

Psychology of Women 3 Prereq Psych 105. Same as Psych 324.

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.

Women in Latin American History 3 Same as Hist 335.

History of Sexualities 3 Historical analysis of the social construction of sexualities in intersection with race and class within national and transnational contexts.

Women in the Ancient World 3 Same as Hist 337.

Women and Popular Culture 3 Intersections of gender, race, class and sexuality through popular film, television, art, literature and performance.

Third World Women and Film 3 Focus on the intersections of race, gender, class, sexuality, and nation in “third world” women's films.

European Women's History, 1400-1800 3 Same as Hist 350.

The Family 3 Prereq Psych 105 or Soc 101. Same as Soc 351.

Women and Music 3 Same as Mus 363.

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.

Indigenous Women in Traditional and Contemporary Societies 3 Prereq one of Anth 101, 214, CES 101, 171, or W St 200. Same as CES 372.

American Literature: 1940-Present 3 Prereq Engl 302. Same as Engl 482.

Sociology of Sexuality 3 Prereq Soc 101, Soc 102, or W St 200. Social construction of sexuality, sexual behavior, and sexuality as part of social inequalities and institutions.


Gender and Work 3 Same as Soc 390.

History of Women in the American West 3 Same as Hist 398.

History of Women in the American West 3 Same as Hist 399.

Violence Toward Women 3 Same as Crm J 403.

Contemporary Art: Theory and Practice 3 Same as F A 405.

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.

Biography 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.

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.

Women Writers in the American West 3 Prereq completion of one Tier I and three Tier II courses. Same as Engl 409.

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.
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 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.

Because of specialized support material required and the nature of course content, course enrollment is restricted. With the approval of the course director and the student's advisor, certain courses listed below may be taken by graduate students enrolled in graduate programs leading to advanced degrees granted by other academic units.

In accordance with the University of Washington School of Medicine policy, all Med S courses are S, F graded.

Description of Courses

MEDICAL SCIENCE

Med S

505 P Medical Preceptorship 1 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.

506 Seminar in Rural Health 1 Prereq for WWAMI students only. Introduction for first-year medical students to primary care in rural environments. S, F grading.

510 P Microscopic Anatomy 4 (3-3) For WWAMI students only. Description and microscopic examination of cell types, tissues, and major organs of the human body. Cooperative course taught jointly by WSU and UI (MEDS 510). S, F grading.

511 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) Cooperative course taught jointly by WSU and UI (MEDS 511). S, F grading.

512 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) Cooperative course taught jointly by WSU and UI (MEDS 512). S, F grading.

513 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. Cooperative course taught jointly by WSU and UI (MEDS 513). S, F grading.

514 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) Cooperative course taught jointly by WSU and UI (MEDS 514). S, F grading.

516 Systems of Human Behavior 3 For WWAMI students only. Physical and psychological development of the individual; conceptual systems and models of behavior related to medicine. Cooperative course taught jointly by WSU and UI (MEDS 516). S, F grading.

522 Introduction to Clinical Medicine II 2 For WWAMI students only. Communication skills as related to patients and dealing with problem identification and patient history. Cooperative course taught jointly by WSU and UI (MEDS 522). S, F grading.

523 Introduction to Immunology 2 For WWAMI students only. Principles of immunology and their relationship to human medicine. Cooperative course taught jointly by WSU and UI (MEDS 523). S, F grading.

524 Biochemistry II 2 For WWAMI students only. Continuation of Med S 514P. Cooperative course taught jointly by WSU and UI (MEDS 524). S, F grading.

531 Anatomy and Embryology II 5 (4-3) Gross anatomy; focus on head and neck anatomy, including skull, pharynx, and larynx; audition and balance. Continuation of Med S 511P. Cooperative course taught jointly by WSU and UI (MEDS 531). S, F grading.

532 Nervous System S (4-3) Normal structure and function of the nervous system, including the eye. Cooperative course taught jointly by WSU and UI (MEDS 532). S, F grading.

534 P 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 Introduction to Clinical Medicine III 2 (1-2) For WWAMI students only. The screening physical examination. Cooperative course taught jointly by WSU and UI (MEDS 535). S, F grading.


590 Medical Information for Decision Making 1 Prereq WWAMI student. Medical literature for the purpose of primary research, diagnosis and therapeutic and preventative intervention. Cooperative course taught by UI, open to WSU students (MEDS 590). S, F grading.

600 Special Projects or Independent Study V 1 (0-3) to 6 (0-18) May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 hours. S, F grading.
APPENDIX—ACADEMIC REGULATIONS

UNDERGRADUATE ADMISSION REQUIREMENTS

1. GENERAL REQUIREMENTS
   (a) Applicants 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 credits (three of which must be composition and literature).
- **Mathematics:** Three credits of 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 credits of laboratory science, including one credit of algebra-based science (typically chemistry or physics).
- **Social Science:** Three credits.
- **World Languages:** Two credits of the same world language, Native American language, or American Sign language.
- **Fine Arts:** One credit of fine, visual, or performing arts, or one additional credit of academic elective.

Applicants from unaccredited high schools should contact the Director of Admissions.

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 may 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 may 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.

5. TRANSFER CREDIT. (See Rule 114)
   (a) Colleges and universities must be regionally accredited for college-level academic 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 state 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 GEs for graduation, but do not guarantee junior status (60 semester credits). For details on specific degrees consult the Web site.
   (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 generally 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 or professional students via various means including external examinations, institutional examinations, and approved military service schools. WSU does not accept credit by examination granted by other institutions. Credits by examination shall yield no grade points. Such credits may partially fulfill General Education Requirements for graduation. 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. 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 International Baccalaureate (IB).

(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). 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. Contact the Office of Admissions for specifics.

(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. Contact Student Accounts for information regarding the cost of the challenge examination.

(d) Military Credit. Lower-division elective credit only 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.
4. 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.
5. 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 visits 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 the Registrar 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.

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 Center for Advising and Career Development, 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 readmission and reinstatement that all previous WSU work be disregarded. This includes all credits and grade points earned. Once the student is officially enrolled following the first day of the term, the student’s transcript will be marked to indicate that the previous work is not considered as credit earned. After the subsequent 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 Center for Advising and Career Development on the Pullman campus, WSU Online or designated office on other campuses.
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 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 assistance 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. MAJOR AND CERTIFICATION. The undergraduate major is the in-depth field of study leading to the degree and includes a set of core courses that has been approved by the academic unit offering the major, as well as the College, and the Faculty Senate. The major represents approximately one-third of the credit hours required for the undergraduate degree, though some majors require a higher percentage of the total credit hours. While most majors lead to a degree that shares the same name, some majors lead to a degree with a broader title (e.g., an Accounting major leads to the Bachelor of Arts in Business Administration).

Certification requirements: 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 Center for Advising and Career Development. 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 major and certification requirements.

54. MINOR OR SECOND MAJOR. An undergraduate or professional 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 minor or second major. The student should consult with the department concerning hours and grade point requirements and an approved schedule of studies to meet such requirements. No student shall be required by their major to complete a minor, though the department may encourage students to complement the first major with a certificate, minor, or second major. Once requirements for the minor or second major are met and the student's first undergraduate degree has been conferred and posted to the transcript, the student's transcript will be updated to show these additional academic awards.

An undergraduate minor requires a minimum of 16 semester hours, 9 of which must be in upper-division work and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

A second major requires completion of departmental requirements for the major, exclusive of General Education Requirements. Note that second degrees have additional requirements. See Rule 118.

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 Center for Advising and Career Development 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 "withdrew (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 "withdrew (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 Center for Advising and Career Development 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 fall or spring semester, or according to a prorated schedule for shorter academic terms, will 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 instructor of the student's class. 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 not 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 regular 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.)

GRADERS AND GRADE POINTS

90. GRADERS 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 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.
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 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 midsemester 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.) An Incomplete “I” is the term 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 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.

Students 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 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 designee 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.

100. THE GRADE POINT SYSTEM

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<td>A-</td>
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P  credit given—grade points not calculated.
S  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.
X  provides no credit or grade points.

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.
Appendix—Academic Regulations

105. PETITIONS FOR UNDERGRADUATE GRADUATION REQUIREMENTS. 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.

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.

107. REQUIREMENTS FOR DOCTOR'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) Spend 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.

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, BLA, 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 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 PACT (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 condition upon the student's satisfaction of all University graduation requirements.
   9. The award of a degree is condition upon the student's good standing in the university and satisfaction of all University graduation requirements.
   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 six semesters beyond the baccalaureate degree at least four of which must be at Washington State University.
(b) Spend not less than a minimum of two consecutive semesters in residence at Washington State University.
(c) Earn not less than 72 semester credit hours beyond the baccalaureate degree to include a minimum of 34 semester hours (45 semester hours for the Doctor of Arts degree and 42 semester hours for the Doctor of Education degree) of 400- and 500-level course work listed in the Graduate Study Bulletin.
(d) Earn a minimum grade point average of 3.00 on a graduate program and in all 300-400-level and graduate course work completed for the doctor's degree.
(e) Earn a minimum grade point average of 3.00 for all course work taken as a graduate student.
(f) Successfully complete graduate examinations.

113. REQUIREMENTS FOR DOCTOR'S DEGREES
(a) Spend not less than six semesters beyond the baccalaureate degree at least four of which must be at Washington State University.
(b) Spend not less than a minimum of two consecutive semesters in residence at Washington State University.
(c) Earn not less than 72 semester credit hours beyond the baccalaureate degree to include a minimum of 34 semester hours (45 semester hours for the Doctor of Arts degree and 42 semester hours for the Doctor of Education degree) of 400- and 500-level course work listed in the Graduate Study Bulletin.
(d) Earn a minimum grade point average of 3.00 on a graduate program and in all 300-400-level and graduate course work completed for the doctor's degree.
(e) Earn a minimum grade point average of 3.00 for all course work taken as a graduate student.
(f) Successfully complete graduate examinations.

114. REQUIREMENTS FOR UNDERGRADUATE DEGREES
(a) The four-year degree (BA, BS, BFA, BLA, 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 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 PACT (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 condition upon the student's satisfaction of all University graduation requirements.
   9. The award of a degree is condition upon the student's good standing in the university and satisfaction of all University graduation requirements.
   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.

115. 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.

116. REQUIREMENTS FOR MASTER'S DEGREES
(a) Spend not less than six semesters beyond the baccalaureate degree at least four of which must be at Washington State University.
(b) Spend not less than a minimum of two consecutive semesters in residence at Washington State University.
(c) Earn not less than 72 semester credit hours beyond the baccalaureate degree to include a minimum of 34 semester hours (45 semester hours for the Doctor of Arts degree and 42 semester hours for the Doctor of Education degree) of 400- and 500-level course work listed in the Graduate Study Bulletin.
(d) Earn a minimum grade point average of 3.00 on a graduate program and in all 300-400-level and graduate course work completed for the doctor's degree.
(e) Earn a minimum grade point average of 3.00 for all course work taken as a graduate student.
(f) Successfully complete graduate examinations.

117. REQUIREMENTS FOR DOCTOR'S DEGREES
(a) Spend not less than six semesters beyond the baccalaureate degree at least four of which must be at Washington State University.
(b) Spend not less than a minimum of two consecutive semesters in residence at Washington State University.
(c) Earn not less than 72 semester credit hours beyond the baccalaureate degree to include a minimum of 34 semester hours (45 semester hours for the Doctor of Arts degree and 42 semester hours for the Doctor of Education degree) of 400- and 500-level course work listed in the Graduate Study Bulletin.
(d) Earn a minimum grade point average of 3.00 on a graduate program and in all 300-400-level and graduate course work completed for the doctor's degree.
(e) Earn a minimum grade point average of 3.00 for all course work taken as a graduate student.
(f) Successfully complete graduate examinations.

118. TWO OR MORE BACHELOR'S DEGREES FROM WSU. One four-year undergraduate degree from WSU requires a minimum of 120 semester hours. For each additional undergraduate degree, the student must complete an additional 30 semester hours, as well as to satisfy all requirements of the college and the second degree program. The first bachelor's degree from WSU is understood to fulfill all University requirements for graduation with the second undergraduate degree, including the 300-400-level requirements, University Writing Portfolio, the minimum hours for the first degree (120), as well as the requirements of the General Education Program.

The first bachelor's degree from another regionally accredited institution is understood to fulfill all University requirements for graduation, provided that the general education and major program course patterns at the other institution approximate those at WSU.

121. SUMMER SESSION CREDITS. Credit earned during summer sessions may be applied toward the fulfillment of requirements for baccalaureate and advanced degrees in the same manner and subject to the same rules as credit earned during semesters of regular academic years.

125. 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.)

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 a grade point of 3.75 while enrolled in at least 9 graded hours in a single semester at Washington State University, provided that the cumulative gpa is a 2.0 or better.
(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, provided that the semester gpa is a 3.0 or better.

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 recompute 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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