1998-1999
How to Use this Catalog

Your 1998 Washington State University Catalog provides you with information on a wide variety of important topics. This page shows how you can use the catalog easily.

✔ General Information iv-40

✔ General Education Requirements and Courses 41-47

It is particularly important to understand WSU’s General Education Requirements (GERs), since you must fulfill them in order to graduate.

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 Program students also have different requirements.

✔ Departments, Degree Programs, and Courses 49-244

The information in this section includes the following:

- Listings of faculty, descriptions of academic fields, and departmental requirements, in alphabetical order by department name.
- A complete listing of courses needed to graduate. The degree program requirements are shown in a semester-by-semester sequence to help you plan your schedule. You will find the degree programs organized by department. For instance, the Marketing degree program is found under the Departments of Business. Do note that departmental requirements are set at the time you certify in your major (see page 36 for details).
- 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 Degree Program Requirements

A degree program is a specific area of study leading to a bachelor’s degree. Here is an example and explanation of what you will see when you look at a degree program:

Freshman Year

<table>
<thead>
<tr>
<th>(1)</th>
<th>First Semester</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>Degree Program Course¹</td>
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<table>
<thead>
<tr>
<th>(2)</th>
<th>Foreign Language, if necessary, or Elective</th>
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</thead>
<tbody>
<tr>
<td>Math Proficiency [N] (GER)</td>
<td>3 or 4</td>
<td></td>
</tr>
<tr>
<td>Tier I Science [Q] (GER)</td>
<td>3</td>
<td></td>
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</tbody>
</table>

Many degree programs allow you to take the required courses in a different order. Your advisor can tell you how much flexibility you have in rearranging your degree program sequence.

(1) You are required to take a certain number of General Education Requirements 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 degree program department. So if you plan to be an architecture major, you cannot use Arch 202 [H] (GER) to satisfy your GER requirements, although anyone who is not an architecture major can.

(2) Footnotes are frequently used to give you more detailed information. In this case, the footnote will list the course you should take 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 (see page 40).

✔ Understanding Course Descriptions

Below are examples of course descriptions with definitions for each part:

- Course Prefix: Abbreviation and number. [B] indicates GER course.
- Credit hours are shown here. This is a 4-credit course, with three hours in lecture and three hours in lab each week.
- Prerequisites will be listed if there are courses you need to take before you enroll in this class.
- c// indicates that you may take the course at the same time you take the prerequisite.

✔ Use the Index to find whatever you need!

General Education and Writing Proficiency Requirements

Past changes are summarized in the chart on the following page.

General Education Program Requirements

WSU’s General Education Program has been converted from a simple system of distribution requirements into an integrated program which is organized vertically, allowing sequential study in depth from the freshman year to the junior or senior year. Distribution requirements in the Arts and Humanities, Social Sciences, and Sciences are now organized in three tiers, indicating in broad terms the academic level of the courses and the order in which they should be taken. A portion of the General Education credit hours must be taken within a designated Area of Coherence. This requirement is a way of organizing the choices within the larger General Education curriculum. Within each of the Areas of Coherence, students will select an upper-division capstone course which is intended to assist students’ integration of knowledge from various knowledge domains and to permit focused study within a body of related course work.

A. The Structure of the General Education Program

Students are required to take a minimum of 40 credit hours distributed among the categories listed below. Fifteen of these credit hours (i.e., five courses), including the capstone course, must also be taken within an Area of Coherence.

<table>
<thead>
<tr>
<th>Tier</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
<td>Tier I</td>
<td>15 semester credit hours</td>
</tr>
<tr>
<td>Tier II</td>
<td>22 semester credit hours</td>
</tr>
<tr>
<td>Tier III</td>
<td>3 semester credit hours</td>
</tr>
</tbody>
</table>

The total hours must be 40.

Tier I: 15 semester credit hours
- World Civilizations [A] GenEd 110 and 111 6
- Written Communication [W] 3
- Mathematics Proficiency [N] 3
- Sciences [Q] 3

Tier II: 22 semester credit hours
- Communication Proficiency [W], [C] 3
- Arts and Humanities# [H], [G] 3
- Social Sciences# [S], [K] 3
- Sciences/Social Sciences# [H], [G], [S], [K] 3
- Intercultural [I], [G], [K] 3
- Sciences* [B], [P] 7

Tier III: 3 semester credit hours
- Capstone Course 3

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 WSUs writing proficiency standards for graduation. The requirements are outlined below:

1. Writing Experience within General Education
   a. All students must satisfy the Communication Proficiency requirement by passing 6 hours of written and oral communication courses, including at least 3 in written communication [W] at Tier I, and 3 of either [W] or [C] at Tier II.
   b. Prior to enrollment in freshman writing courses, all students must take a Writing Placement Examination for the purpose of placement in appropriate writing courses. These placements are mandatory. The Writing Placement Examination is administered during summer New Student Orientation, at the beginning of fall semester, and prior to spring registration. Examination results will place students in the core writing course, Engl 101, Introductory Writing (or equivalent), or in Engl 101 plus one hour of Engl 102, Writing Tutorial. Students whose first language is not English may be placed in Engl 105, Composition for ESL Students. In some instances, students may be exempted from Engl 101 on the basis of their performance in the Placement Examination.
   c. General Education courses require student writing of various kinds, both formal and informal, in order to provide adequate instruction in writing skills and to provide a wide range of student experiences in writing for many purposes and audiences.

2. The University Writing Portfolio
   Successful performance with the University Writing Portfolio is a requirement for graduation at WSU. Students may satisfy this requirement, which involves submitting three papers from previously assigned class work plus two timed and proctored writing exercises, any time after successfully completing Engl 101 (or equivalent). Students must complete the portfolio no later than the end of the first semester of upper-division standing (upon completion of 60 hours). Transfer students may elect to postpone the portfolio until they have completed at least a semester of work at WSU.

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.

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.

For more information, see pages 41 and 42.

American Diversity

Courses addressing American Diversity provide an overview of historical and contemporary issues in cultural diversity in the United States. The course work introduces students to one or more issues and engages them in critical inquiry relating to cultural differences and commonalities and their complex interactions in American society.

This requirement adds no new credit hours to the General Education Requirements as American Diversity courses may be double designated.

For more information, see pages 41-45.
### Graduation Requirement Phase-In

#### Timeline

<table>
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<th>Began Post-Secondary Education Before Fall 1991 or Entered WSU As Transfer Student and Began Post-Secondary Education Before Fall 1993</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fell 1995 and After</td>
<td>Fall 1993 Through Spring 1995</td>
</tr>
<tr>
<td>World Civilizations [A] 6 hours</td>
<td>World Civilizations [A] 6 hours</td>
</tr>
<tr>
<td>Communication Proficiency [C] [W] 6 hours</td>
<td>Communication Proficiency [C] [W] 6 hours</td>
</tr>
<tr>
<td>At least 3 hours must be [W]</td>
<td>At least 3 hours must be [W]</td>
</tr>
<tr>
<td>Writing Placement Exam required if no transfer or AP credit for Eng101 or equivalent</td>
<td>Writing Placement Exam required if no transfer or AP credit for Eng101 or equivalent</td>
</tr>
<tr>
<td>Intercultural Studies [I] [G] [K] 3 hours</td>
<td>Intercultural Studies [I] [G] [K] 3 hours</td>
</tr>
<tr>
<td>Arts and Humanities [H] [G] 3 hours</td>
<td>Arts and Humanities [H] [G] 3 hours</td>
</tr>
<tr>
<td>Social Sciences [S] [K] 3 hours</td>
<td>Social Sciences [S] [K] 3 hours</td>
</tr>
<tr>
<td>Additional Arts and Humanities or Social Sciences</td>
<td>Additional Arts and Humanities or Social Sciences</td>
</tr>
<tr>
<td>Course [H] [G] [S] [K] [I] 6 hours additional</td>
<td>Course [H] [G] [S] [K] [I] 6 hours additional</td>
</tr>
<tr>
<td>Mathematics Proficiency [N]</td>
<td>Mathematics Proficiency [N]</td>
</tr>
<tr>
<td>Sciences [B] [P] [Q] 10 hours, including one lab</td>
<td>Sciences [B] [P] [U] [Z] [O] 10 hours, including one lab</td>
</tr>
<tr>
<td>At least 3 hours [B] and 3 hours [P]</td>
<td>At least 3 hours [B] and 3 hours [P]</td>
</tr>
<tr>
<td>Area of Coherence Capstone Course</td>
<td>Area of Coherence Capstone Course not required</td>
</tr>
<tr>
<td>University Writing Portfolio</td>
<td>University Writing Portfolio Required for transfer students Fall 1991 and after</td>
</tr>
<tr>
<td>Writing in the Major [M] two courses</td>
<td>Writing in the Major [M] two courses. Required for transfer students Fall 1991 and after</td>
</tr>
<tr>
<td>College of Liberal Arts College of Sciences Requirements in addition to GERs listed above</td>
<td>College of Liberal Arts College of Sciences Requirements in addition to GERs listed above</td>
</tr>
<tr>
<td>Sciences [B] [P] [Q] 2 hours including one lab additional</td>
<td>Sciences [B] [P] [U] 2 hours including one lab additional</td>
</tr>
<tr>
<td>Arts and Humanities, Social Sciences, Intercultural Studies [H] [G] [S] [K] [I] 6 hours additional</td>
<td>Arts and Humanities, Social Sciences, Intercultural Studies [H] [G] [S] [K] [I] 6 hours additional</td>
</tr>
<tr>
<td>Foreign Language - one year (two semesters or three quarters) at the university level or two years of one language at the high school level</td>
<td>Foreign Language - one year (two semesters or three quarters) at the university level or two years of one language at the high school level</td>
</tr>
</tbody>
</table>

### SPRING 1993

- **World Civilizations [A]** 3 hours
- **Communication Proficiency [C] [W]** 6 hours
- **At least 3 hours must be [W]**
- **Writing Placement Exam required if no transfer or AP credit for Eng101 or equivalent**
- **Intercultural Studies [I] [G] [K]** 3 hours
- **Arts and Humanities [H] [G]** 3 hours
- **Social Sciences [S] [K]** 3 hours
- **Additional Arts and Humanities or Social Sciences**
- **Course [H] [G] [S] [K] [I]** 6 hours additional
- **Mathematics Proficiency [N]**
- **Sciences [B] [P] [Q]** 10 hours, including one lab
- **At least 3 hours [B] and 3 hours [P]**
- **Area of Coherence Capstone Course**
- **University Writing Portfolio**
- **Writing in the Major [M]** two courses

### Entered WSU as Freshman Fall 1991 Through Spring 1993

- **World Civilizations [A]** 3 hours
- **Communication Proficiency [C] [W]** 6 hours
- **At least 3 hours must be [W]**
- **Writing Placement Exam required if no transfer or AP credit for Eng101 or equivalent**
- **Intercultural Studies [I] [G] [K]** 3 hours
- **Arts and Humanities [H] [G]** 3 hours
- **Social Sciences [S] [K]** 3 hours
- **Mathematics Proficiency [N] [O]**
- **Sciences [B] [P] [U] [Z] [O]** 10 hours, including one lab
- **University Writing Portfolio**
- **Writing in the Major [M]** two courses

### Minimum University Graduation Requirements:

- 120 total hours
- 40 upper-division hours
- 2.0 overall g.p.a.

Summer enrollment by itself does not constitute college admission.

Running Start students are held to university graduation requirements based on high school graduation date.

Acceptable Associate of Arts (AA) or Associate of Science (AS) degree from a Washington community college or Associate of Arts-Oregon Transfer degree from an Oregon community college fulfills all lower-division university graduation requirements. University Writing Portfolio, Writing in the Major courses, and the Tier III capstone course are not fulfilled by the associate degree. Majors in the College of Liberal Arts and the College of Sciences must also complete the additional college requirements.

Students who entered WSU as freshmen spring 1991 or before are held to the 1985 General University Requirements (CURs).

University Honors Program students do not complete GERs.

Prepared by Student Advising and Learning Center and Registrar's Office
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A. Gale Sullenberger
Dean, College of Business and Economics

James J. Zuiches
Dean, College of Agriculture and Home Economics

LEGAL COUNSEL

Senior Assistant Attorney General
# Academic Calendar

### First Semester 1998-99 1999-2000

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<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Classes begin, Monday</td>
<td>Aug 24</td>
<td>Aug 23</td>
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<tr>
<td>Labor Day holiday</td>
<td>Sept 7</td>
<td>Sept 6</td>
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<tr>
<td>Midsemester grades due, 8:00 a.m.</td>
<td>Oct 19</td>
<td>Oct 18</td>
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<tr>
<td>Veterans Day holiday</td>
<td>Nov 11</td>
<td>Nov 11</td>
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<tr>
<td>Thanksgiving Vacation</td>
<td>Nov 23-27</td>
<td>Nov 22-26</td>
</tr>
<tr>
<td>Final Examinations, Monday through Friday</td>
<td>Dec 14-18</td>
<td>Dec 13-17</td>
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<tr>
<td>Final grades due, 4:00 p.m.</td>
<td>Dec 22</td>
<td>Dec 21</td>
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### Second Semester

<table>
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<tbody>
<tr>
<td>Classes begin</td>
<td>Jan 11</td>
<td>Jan 10</td>
</tr>
<tr>
<td>Martin Luther King, Jr. Day holiday</td>
<td>Jan 18</td>
<td>Jan 17</td>
</tr>
<tr>
<td>Presidents Day holiday</td>
<td>Feb 15</td>
<td>Feb 21</td>
</tr>
<tr>
<td>Midsemester grades due, 8:00 a.m.</td>
<td>Mar 8</td>
<td>Mar 6</td>
</tr>
<tr>
<td>Spring Vacation</td>
<td>Mar 15-19</td>
<td>Mar 13-17</td>
</tr>
<tr>
<td>Final Examinations, Monday through Friday</td>
<td>May 3-7</td>
<td>May 1-5</td>
</tr>
<tr>
<td>Commencement</td>
<td>May 8</td>
<td>May 6</td>
</tr>
<tr>
<td>Final grades due, 4:00 p.m.</td>
<td>May 11</td>
<td>May 9</td>
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### Summer Session

<table>
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<tbody>
<tr>
<td>Early Session Registration</td>
<td>May 10</td>
<td>May 8</td>
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<tr>
<td>Memorial Day holiday</td>
<td>May 31</td>
<td>May 29</td>
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<tr>
<td>Eight-Week Session Registration</td>
<td>June 7</td>
<td>June 5</td>
</tr>
<tr>
<td>Late Six-Week Session Registration</td>
<td>June 21</td>
<td>June 19</td>
</tr>
<tr>
<td>Independence Day holiday</td>
<td>July 5</td>
<td>July 4</td>
</tr>
<tr>
<td>Summer Session ends, Friday</td>
<td>July 30</td>
<td>July 28</td>
</tr>
<tr>
<td>Final grades due, 4:00 p.m.</td>
<td>Aug 3</td>
<td>Aug 1</td>
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</tbody>
</table>

Faculty advising and preregistration for continuing students will be held prior to the end of the previous term.  
Registration dates are subject to change based on adoption of new technology.
Accreditation and Associations

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

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

Commission on Colleges of the Northwest Association of Schools and Colleges
Council of Graduate Schools in the United States
American Assembly of Collegiate Schools of Business
American Association for Accreditation of Laboratory Animal Care
American Association of Colleges for Teacher Education
American Association of Colleges of Pharmacy
American Association of Veterinary Laboratory Diagnosticians
American Camping Association
American Chemical Society
American Council for Construction Education
American Council on Pharmaceutical Education
American Dietetic Association
American Psychological Association
American Society of Agricultural Engineers
American Society of Landscape Architects
American Society of Range Management
American Speech-Language-Hearing Association
American Veterinary Medical Association
Association for the Advancement of International Education
Computer Science Accreditation Commission of the Computing Sciences Accreditation Board
Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology
Foundation for Interior Design Education Research
National Academy of Early Childhood Programs
National Architectural Accrediting Board
National Association of Schools of Music
National Athletic Trainers Association
National Council for Accreditation of Teacher Education
National League for Nursing
National Recreation and Park Association
National University Continuing Education Association
Society for Range Management
Society of American Foresters
State Board of Education
University Council on Education Administration
Washington State Board of Nursing
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<td>Degrees Granted</td>
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<td>The Libraries</td>
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## Student Life

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<td>Student Government</td>
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## Student Services and Facilities

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<td>The Disability Resource Center (DRC)</td>
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<tr>
<td>Educational Telecommunications and Technology</td>
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<tr>
<td>Gay, Lesbian, Bisexual, and Allies Program</td>
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<tr>
<td>The Center for Human Rights</td>
<td>6</td>
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<tr>
<td>The Office of Multicultural Student Services</td>
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<tr>
<td>Museums and Collections</td>
<td>6</td>
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<td>Music and Theatre</td>
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<tr>
<td>Jewett Observatory and University Planetarium</td>
<td>7</td>
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<td>The Ombudsman Office</td>
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<td>Speech and Hearing Clinic</td>
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<td>Student Advising and Learning Center (SALC)</td>
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<td>Student Computing Labs</td>
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<td>Student Health and Wellness Services</td>
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<td>Information Technology Telephone Services</td>
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<td>Women’s Resource Center</td>
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## Educational Enhancement

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<td>Cooperative Courses with the University of Idaho</td>
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<td>Extended University Services</td>
<td>9</td>
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<td>Four-Year Degree Agreement</td>
<td>9</td>
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<td>University Honors Program</td>
<td>9</td>
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<td>International Programs</td>
<td>10</td>
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<tr>
<td>Intensive American Language Center</td>
<td>10</td>
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</tbody>
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## Research Facilities

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<th>Page</th>
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<td>Apache Point Observatory</td>
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<tr>
<td>Laboratory for Atmospheric Research</td>
<td>11</td>
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<tr>
<td>Electron Microscopy Center</td>
<td>11</td>
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<tr>
<td>Environmental Research Center</td>
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<tr>
<td>GeoAnalytical Laboratory</td>
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<td>Information Technology</td>
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Washington State University

Washington State University, the state’s land-grant university, is dedicated to the preparation of students for productive lives and professional careers, to basic and applied research in various fields, and to the dissemination of knowledge. Founded in Pullman in 1890, the university became a multicampus system in 1989 with the establishment of campuses in Spokane, the Tri-Cities and Vancouver.

The university consists of eight colleges, a graduate school, and the Intercollegiate Center for Nursing Education (ICNE) which is headquartered in Spokane. For more than a century, WSU has offered strong and varied academic programs. The liberal arts and sciences have always occupied an important place in the curriculum, along with business, education, architecture, pharmacy, nursing, and the traditional land-grant programs in agriculture, engineering, home economics, and veterinary medicine.

The university offers nearly 100 major fields of study. Bachelor’s degrees are available in all major areas, with master’s and doctoral degrees available in most. WSU’s University Honors Program is one of the oldest and most well-respected, all-university programs for academically talented students in the nation. The new undergraduate core curriculum, including world civilizations courses and expanded writing requirements, is nationally recognized. Money magazine has called WSU a “public ivy” and rated the Honors Program one of the best in the nation.

Washington’s only statewide university, WSU has Cooperative Extension offices in all 39 counties, eight regional learning centers, seven research and extension facilities in various locations, and 24 Small Business Development Centers statewide. The ICNE has a satellite nursing center in Yakima, and students can take WHETS courses from Wenatchee (via WSU Vancouver). WSU’s business school has a Center for Hotel and Restaurant Administration in Seattle. The university runs the Washington Higher Education Telecommunication System (WHETS), which transmits live, interactive instruction to the branch campuses and other sites. In 1992, WSU introduced a bachelor’s degree in social sciences via distance learning technologies, including cable television, for placebound students statewide.

WSU’s instructional faculty of approximately 1,100, including a substantial number of scholars with national and international reputations, is responsible for instruction that opens students’ minds to the most recent knowledge and discoveries. The opportunity for students to know and work closely with their instructors is one advantage of a medium-sized, residential campus such as WSU Pullman. Personal attention from faculty is also a hallmark of the branch campuses.

The heart of the WSU system is the Pullman campus. WSU has about 17,000 students, including those in Pullman and at the ICNE. Of these, about 15,000 are undergraduates and nearly 2,000 are graduate students. Pullman is one of the largest residential campuses west of the Mississippi with about half of the student body living in residence halls, single and family student apartments, and fraternity and sorority houses. Here, students of diverse social, economic and ethnic backgrounds from throughout the nation and more than 90 countries come together in a community in which education is the principal industry and human development the primary concern.

More than 2,900 juniors, seniors and graduate students are enrolled at WSU Spokane, WSU Tri-Cities and WSU Vancouver. The branch campuses serve placebound individuals who have had limited opportunities to complete bachelor’s and master’s degrees. Enrollment is expected to double by the beginning of the next century as facilities and degree offerings are expanded.

WSU’s main campus is located in the Palouse country of southeast Washington, where much of the nation’s finest wheat and legumes are produced. Several small but expanding high-tech firms are diversifying Pullman’s economy. The 600-acre campus features modern classrooms and laboratories, libraries, museums, student residences, recreational and athletic facilities, student union and a community hospital. A new library addition has doubled WSU’s library capacity. Of special note are a one-of-a-kind alumni center, a fine arts building with galleries, a state-of-the-art chemistry building, and a 12,000-seat performing arts coliseum that is home to Cougar basketball. The football stadium, which seats 40,000, is complemented by modern track and field and baseball facilities, all for Pac-10 competition.

A nine-hole golf course, 16 all-weather tennis courts and three swimming pools, including one of Olympic dimensions, are on the Pullman campus. Special playing fields accommodate intramural sports. WSU has one of the largest university-sponsored intramural programs in the nation as well as extensive student life programming.

For more information, visit our web site, http://www.wsu.edu.

Degrees Granted

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<td>History, BA, MA, PhD</td>
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<td>Home Economics, BS</td>
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<td>Agricultural Molecular Genetics and Cell Biology, BS</td>
<td>Horticulture, BS, MS, PhD</td>
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<td>Agricultural Technology and Management, BS</td>
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<td>Humanities, BA</td>
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<td>Apparel, Merchandising, and Textiles, BA, MA</td>
<td>Individual Interdisciplinary, DA, Ph</td>
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<td>Architectural Studies, BS</td>
<td>Integrated Crop Production Systems, BS</td>
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<td>Horticulture, BS, MS, PhD</td>
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<td>Hotel and Restaurant Administration, BA</td>
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<tr>
<td>Human Development, BA, MA</td>
<td>Zoology, BS, MS, PhD</td>
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The Libraries

The University Libraries are an integral part of the WSU educational experience. Over three million books, journals, newspapers, microforms, CD-ROMs and other electronic resources, technical reports, maps, manuscripts, art prints, and photographs and other publications support WSU’s commitment to teaching, research, and public service. The Libraries are depositories for U.S. documents, municipal and state documents, those from foreign countries, as well as publications of the U.N.

The Libraries share an integrated online system called Griffin with Eastern Washington University. Griffin indexes the library holdings of both institutions and provides access to a wide assortment of electronic indexes and full-text databases. Reference librarians provide personal assistance using modern methods of information retrieval. For the most part, collections are maintained in easily accessible, open-stack arrangements. Limited study facilities are available. Special service programs include instruction in library use; accessing national computerized information systems; and accessing resources of other libraries, national and international, through inter-library cooperation.

The Holland/New Library provides extensive collections in the social sciences, business, and the humanities, as well as sophisticated service components designed to assist students, faculty, and researchers in utilizing these resources. Manuscripts, Archives, and Special Collections contain rich collections of primary resource materials books, manuscripts, photographs to support study and research in a number of fields, including Pacific Northwest history, modern British literature, regional publishing, veterinary history, agricultural history, wildlife and outdoor recreation, WSU history, and other subjects. Media Materials Services houses the Learning Resource Center and provides videotapes, films, slides, audio tapes and other media for classroom instruction, LRC use, local checkout and national circulation. Collections include the WSU-Ul Regional Media Collection, the McCaw Classic Feature Films, Gnaedinger Historical Films, Pitzer Classic Radio Tapes, and others.

Owen Science and Engineering Library supports study and research in the pure and applied sciences with substantial collections in these disciplines, as well as automated bibliographic retrieval, user services, and a graduate student study room. It is conveniently located near most departments served by its collections.

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

The biomedical collections and services offered by the Veterinary Medical/Pharmacy Library, located in Wegner Hall, primarily support the instructional and research needs of the Colleges of Veterinary Medicine and Pharmacy.

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

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

In addition, library resources and facilities are available on the three branch campuses: Spokane, Tri-Cities, and Vancouver.

The libraries operate without interruption, except for designated holidays, throughout the calendar year. For full and detailed information about the WSU Libraries, visit the homepage: http://www.wsulibs.wsu.edu.

The Summer Session

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

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

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

The Summer Session Bulletin, published annually in March, is available upon request to the Summer Session Office, Washington State University, Pullman, WA 99164-1035. Application and housing forms with published deadline dates are included in the Summer Session Bulletin. Visit the Summer Session web site, http://www.summer.wsu.edu.

WSU Foundation

Private support to Washington State University since the foundation was created in 1979 has had a tremendous impact on the quality of programs at WSU. The foundation raised more than $250 million in the last six years for WSU’s priorities of furthering great teaching, increasing access and diversity, fostering WSU’s special experience for students, and advancing research to serve Washington and the world. All gifts go in full to the area designated by the donor. The foundation administers donations in the best interests of both the donor and the university. Inquiries may be addressed to the President, WSU Foundation, Pullman, WA 99164-1042.
Student Life

Compton Union Building
The Compton Union Building is the campus community center. More than a building, it is an educational program of out-of-class activities designed to provide for the student’s personal, social, and cultural development; practice in leadership; and management and enjoyment of leisure activities.

The union has facilities for student activities, conferences and conventions. Facilities include food services of all kinds, meeting rooms, a games area, guest rooms for campus visitors, movie theater, copy center, lecture notes, outdoor rental shop, art gallery, legal services, lockers, and a variety of shops (called Little Main Street) offering a US Post Office, hairstyling salon, bank, travel service, credit union, floral shop, film processing service, typing service and bank machines.

Other groups with office space include the Associated Students of Washington State University (ASWSU), Associated Women Students, Residence Hall Association, Panhellenic/Intrafraternity Council, and Graduate and Professional Students Association (GPSA).

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

Golden Key. Golden Key National Honor Society was established in 1977 and chartered at WSU in 1987. The society is open to the top 15 percent of the junior and senior classes in all disciplines of study. Qualification is defined at WSU as those students with over 60 credit hours, 30 of which must be from WSU, who have attained a 3.4 cumulative g.p.a. Golden Key offers not only recognition for superior academic achievement, but opportunities for service and leadership. The WSU Golden Key Chapter annually recognizes the two outstanding academic advisors of the year at its annual induction reception.

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

Omicron Delta Kappa. Omicron Delta Kappa is the national leadership honor society for juniors, seniors, graduate, and professional students. For eighty years, the society has recognized achievement and leadership in scholarship, athletics, campus and community service, social and religious activities, campus government, journalism, speech and the mass media, and the creative and performing arts. Students of any discipline who are in the top 35 percent academically are invited to apply for lifetime membership.

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

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

Student Clubs, Organizations, and Honorary
Participation in departmental clubs and honorary organizations, and campus activities is an important part of student life. More than three-fourths of the student body take part in the activities program. Adequate opportunities are available for every student to pursue extracurricular interests through service, recreation, religious, and other specialized interest groups.

AsWSU and the Activities and Recreational Sports Office coordinate and guide existing student organizations and assist new groups in developing sound programs. A professionally trained staff is prepared to help all students in planning well balanced activity programs adapted to their particular needs and interests.

Student Government
Undergraduate students at Washington State University are represented by 18 elected representatives who serve on the Associated Students of Washington State University (ASWSU) Senate. ASWSU is interested in a wide range of issues relating to the student’s life at WSU and is led by the student body president and vice president. The senate is directly involved in the allocation of ASWSU funds for programming and the establishment of operating procedures. Through the senate, ASWSU has developed a number of student committees and programs in the areas of education, entertainment, and recreation.

Graduate and professional students are members of the Graduate and Professional Students Association (GPSA). Five members of the GPSA represent their constituents on the Faculty Senate.

Student Publications
Student publications provide opportunities for students to express themselves, to serve the university community, and to gain experience in the production of a variety of printed self-supporting publications. The goal of each student publication is to provide information for students, staff, faculty, alumni, and other readers interested in Washington State University.

_The Daily Evergreen_ is issued five times per week on campus during the nine months of the regular academic year. _The Summer Evergreen_ is issued twice a week during summer session.

_The Chinook_ is the university yearbook issued each August to over 9,000 buyers.
Student Services and Facilities

Career Services

Career Services offers a variety of career related resources and services. Counselors assist students in assessing skills, interests, and work values; developing decision-making skills; identifying and exploring career options; connecting academic majors to internship opportunities and future careers; preparing for graduate/professional school; and planning job search strategies. Each semester, Career Services offers a one-credit course (University 100) to help students enhance their career decision-making skills and better understand how to connect their academic experiences with the world of work. An interactive computer-assisted program (called SIGI+) is also available to help students with self-assessment and information about career options. The Career Resource Center maintains information on WSU majors, occupations, job search and graduate school preparation materials, and employer literature and directories.

A variety of workshops are regularly scheduled on topics such as Resume Preparation, Interviewing, Internship Strategies, Job Searching on the Internet, and Applying to Graduate/Professional School. Counselors also offer daily drop-in hours for review of resumes and cover letters. In addition, Career Services sponsors two major career fairs each year.

Through on-campus interviews, students can interview for internship and permanent employment with more than 300 employers who recruit at WSU. Students registered with Career Services may also take advantage of the resume referral service to access employers who are interested in WSU students but not planning to come to campus. Career Services also maintains extensive current job and internship listings in partnership with JOBTARK Corporation.

Career Services offers placement/credential file service. Primarily used by education graduates or students applying to graduate or professional schools, placement/credential files hold letters of recommendation. For more information about whether you need to establish a file, contact Career Services.

To access job and internship listings, register with us, check scheduled workshop/drop-in hours and upcoming events, visit our web site http://www.careers.wsu.edu/. For more information, please visit us at 180 Lighty or call (509) 335-2546.

WSU Children's Center

WSU Children's Center offers part- or full-time child care for six-week- to 12-year-old children of WSU students, staff, and faculty in two locations. One hundred and thirty-five children (ages 18 months to 12 years) are housed in the main center on Olympia Avenue and 25 children (ages six weeks to 18 months) are located in Commons Hall 103. Licensed by the Washington Department of Social and Health Services and accredited by the National Academy for Early Childhood Programs, the centers are designed to meet child care needs of parents while providing intellectual, social, emotional, and physical growth opportunities for children. Activities vary from quiet to active, group to individual, structured to unstructured. Children are grouped developmentally by age. Snacks and lunches are provided.

The centers are also available to students for observation and participation for classes. Work-study jobs are also available. Further information may be obtained by calling (509) 335-8847.

Conflict Resolution Program

The Conflict Resolution Program (CRP) assists in managing and resolving disputes by peaceful and constructive means to the benefit of employees, students, and the greater university community. The CRP offers a number of conflict resolution services including: consultation, facilitation, mediation, and organizational intervention. The Conflict Resolution Program takes a preventative approach to resolving disputes, offering a variety of educational services that include training, workshops, and classroom presentations. The office is located in Daggy Hall, Room 4. The program is open year-round, including the summer. The telephone number is (509) 335-6648.

Counseling Services

WSU Counseling Services offers specialized individual and group counseling and testing services without charge to any regularly enrolled student. A staff of professionally trained counselors is available to provide confidential assistance to students with personal, social, academic, or couple concerns. Group counseling and workshops are provided to help students with personal development and adjustment and to cope with such issues as eating disorders and sexual assault and abuse. Crisis services and consultation are available on a 24-hour basis. Call (509) 335-4511 for appointments or information.

Counseling Services provides the university with a comprehensive testing program. National, state, and personal testing is available by appointment, (509) 335-4513.

The Disability Resource Center

The Disability Resource Center (DRC) coordinates accommodations for students with disabilities in academic and non-academic programs. Accommodations may include modified test taking, textbooks on tape, sign language interpreters, notetakers, and accessible transportation on campus. Services available include academic advising, learning strategies training, the use of adapted equipment, and referrals.

The center provides disability awareness training for WSU faculty, staff, and students. The center works cooperatively with university programs to encourage compliance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973. The DRC promotes self-advocacy for students with disabilities and teaches them self-advocacy skills.

For additional information contact the Disability Resource Center, room 206, Administration Annex, (509) 335-1566.

Educational Telecommunications and Technology

Educational Telecommunications and Technology operates Northwest Public Radio, a network of ten radio stations; Northwest Public Television, a network of two public television stations; and the Washington Higher Education Telecommunication System (WHETS).


Northwest Public Television, a member of the Public Broadcasting Service, produces and broadcasts local and national programs. KTNW-TV extends coverage to the Tri-Cities and Walla Walla areas while KWSU-TV broadcasts in the Pullman region. The signal of Northwest Public Television is extended by two community-owned translators in central Washington.

WHETS is a statewide interactive distance learning video system which serves classrooms in Moscow, Pullman, Richland, Seattle, Spokane, Boeing, Vancouver, Wenatchee, and Yakima. Instructional support activities also include Cable 8, a university-oriented Pullman cable channel; KUGR-FM, a student-operated commercial radio station; and telecommunications support for academic departments.

Gay, Lesbian, Bisexual, and Allies Program and Center

The WSU Gay, Lesbian, Bisexual, and Allies (GLBA) Program and Center assist Washington State University in providing a social, academic, and employment climate that acknowledges, respects, and enhances the quality of life for gay, lesbian, bisexual, and transgendered students, faculty, staff, and their allies. The GLBA Program offers educational programming and a speakers bureau for campus and community organizations. The program actively supports research and curricular developments which integrate GLBT scholarship in the university. The program is also a source of referrals and information for the campus and local community. The center has a library of
books, magazines, and videos on glbt issues available for check-out, and a lounge which serves as a gathering place, meeting room, and study area. An active Friends of the Center group sponsors a variety of events which support the program and its projects.

For more information about the GLBA Program, contact the program office, Compton Union Building, Room B19A, (509) 335-6428.

The Center for Human Rights

The mission of the Center for Human Rights is to assist WSU in achieving affirmative action, equal economic and educational opportunity, and fair and equitable treatment for all of WSU’s constituents. The Center for Human Rights is responsible for:

- EEO/AA: Participating in the search process for vacant positions; conducting recruitment orientation in compliance with the WSU recruitment manual; coordinating departments’ EEO representatives; and monitoring hiring of classified staff, faculty, and exempt positions for EEO/AA compliance.
- Complaint Investigation: Investigating complaints of all forms of alleged illegal discrimination, including sexual harassment; prohibiting forms of discrimination including race, sex, religion, age, color, creed, national or ethnic origin, physical, mental or sensory disability, marital status, sexual orientation, and status as a Vietnam-era veteran; utilizing how-to manual to assist managers and supervisors in investigating sexual harassment complaints; referring appropriate cases to the Conflict Resolution Programs and Human Resource Services.
- Compliance: Developing the university’s annual affirmative action plan; preparing EEO reports; maintaining applicant flow data collected from searches; conducting audits of the university’s work environment for posters, materials, and activities that are inappropriate and violate WSU’s discrimination policy.
- Activities: Collaborating with Diversity Education and Employee Development on training programs for faculty, staff, and administrators.
- For more information contact the Center for Human Rights, French Administration Building 225, Pullman, WA 99164-1022, (509) 335-8288, FAX (509) 335-1259.

The Office of Multicultural Student Services

The Office of Multicultural Student Services’ primary purpose is to provide services and programs that recruit, matriculate, and graduate students of color (African American, Asian American and Pacific Islander, Chicano/Latino, and Native American). Other goals are to expand cultural awareness, to celebrate our differences and similarities, and to heighten the appreciation of cultural and racial diversity within the university and the Pullman community.

The unit is comprised of an Administrative area, Operations, Recruitment and Community Relations, Assessment and Evaluation, Multicultural Student Retention Services, four multicultural student centers (African American, Asian American and Pacific Islander, Chicano/Latino, and Native American), and the Talmadge Anderson Heritage House.

The recruitment coordinators travel extensively to meet with students of color in high schools and community colleges. The recruiters present information about WSU and guide students through the admissions process. They also work closely with communities to plan early outreach programs and to bring students to campus.

The counselors serve as academic advisors, advocate for students, assist in problem solving, direct and develop programs, make referrals to other departments and services on campus, and provide information on scholarships, internships, careers, and graduate programs. Each counselor has an office in their respective student center. These student centers offer a number of services such as social support, a study area, and a gathering place for student organizations.

For more information, contact the Office of Multicultural Student Services, Lighty Student Services Building, Room 190, (509) 335-7852.

Museums and Collections

The Museum of Anthropology has permanent exhibits that include human evolution, biological diversity, and prehistoric peoples of the lower Snake River as well as exhibits that focus on cultural similarities and differences in the lifeways of people in past and present societies. Shorter-term exhibits report on faculty and graduate student research projects from around the globe.

For both students and visitors, the museum provides an introduction to the study of human culture. It also serves as a repository for artifacts resulting from WSU research projects, including extensive archeological collections from sites in the Columbia Basin and Snake River regions of Washington. As such, it is integral to the teaching, research, and public service functions of WSU’s Department of Anthropology.

The Museum of Anthropology is located on the first floor of College Hall. Guest speakers and special programs are scheduled throughout the year for those interested in additional exposure to anthropological issues. Group tours may be scheduled two weeks in advance by calling the Museum Curator, Department of Anthropology, (509) 335-3936 or (509) 335-3441.

The Museum of Art

The Museum of Art was established in 1974 around a core collection of American paintings assembled by former WSU President E. O. Holland and former WSU Regent Charles Orton. Dedicated to serving the educational purposes of WSU and the people of the state of Washington, the museum presents a wide variety of changing exhibitions ranging from antiquity to the contemporary, from design and photography to sculpture and painting. Exhibitions originated by the museum staff have toured the nation. The museum also offers a wide variety of speakers, films, and other special events.

The museum’s collection of American nineteenth- and twentieth-century paintings, drawings, and prints has grown in the past years through financial donations and important gifts from collectors and alumni in the Northwest. This permanent collection is seen in a special exhibition each summer.

The exhibition gallery of the Museum of Art is open and free to the public seven days a week from September to July. The gallery is closed for university holidays and in order to install new exhibitions. For more information on hours and exhibitions, call (509) 335-6607. Guided tours for groups are available upon request and free of charge. An active Friends of the Museum association hosts public receptions and supports museum programs through memberships and volunteer work. Call (509) 335-1910 for all details.

Conner Museum

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

The museum also maintains a separate research collection of about 50,000 specimens of birds, mammals, reptiles and amphibians, including skins, skeletons and specimens preserved in alcohol and formalin. These collections are used for teaching and research in anatomy, systematics, evolution, biogeography, ecology and conservation, and are loaned throughout the world for research purposes. The collection is located in Science Hall, Room 101, and is available to qualified workers. Tours can be arranged by calling (509) 335-3515 or (509) 335-1977 well in advance.

Culver Memorial and Jacklin Collection

The Culver Memorial, located in the Physical Sciences Building, houses the Jacklin Petrified Wood Collection. This spectacular collection contains more than 2000 cut and polished specimens of petrified wood from all major localities in the western U.S. It is the largest display of its kind in the western U.S. Also included in the collection is a large selection of cut and polished agate, geodes and dinosaur bone.

The Culver Collection includes over 100 classic rock and mineral specimens from localities throughout the world. Both the Jacklin and Culver Collections may be viewed Monday through Friday, 8:00 a.m. to 5:00 p.m. Group tours may be arranged by calling the Department of Geology, (509) 335-3099.

Drucker Collection

The Minnie Barstow Drucker Memorial Collection of Oriental Art consists of oriental furniture, accessories, art, textiles, and costumes. The collection was given to the university in 1944 by the late Arthur Eilert Drucker in memory of his wife. The Chinese, Korean, and Japanese artifacts were collected during the years the Druckers made the Orient their home. The collection may be viewed in White Hall by writing directly to the Department of Apparel, Merchandising, and Interior Design or by calling (509) 335-3823 for an appointment.

The Historic Textiles and Costume Collection

The Historic Textiles and Costume Collection contains approximately 2000 items of women’s, children’s and men’s clothing and costume accessories from...
James Entomological Collection

One of the largest insect collections in the Pacific Northwest, the Maurice T. James Collection houses over one million insect specimens and an extensive working library. Adult and immature stages of all insect groups and many related arthropods are represented with particular strengths in the flies, beetles, and butterflies. Primarily of regional significance, the collection also includes considerable material from the New World tropics, eastern North America, and Asia. The collection functions essentially as a research facility by providing specimens on loan to recognized scientists worldwide, by offering identification services to university extension entomologists, and by serving as a repository of type specimens and other materials. Public tours and interpretative presentations for groups can be arranged in advance by calling (509) 335-3394. The collection is located in the Food Science and Human Nutrition Building, Room 157.

Mycological Herbarium

The Mycological Herbarium of Washington State University is housed in, and maintained by, the Department of Plant Pathology, third floor, Johnson Hall. The herbarium was founded by Frederick D. Heal, the first chairman of the department, in 1915 and now contains more than 68,000 specimens of fungi. Included are representative materials of all the major groups from the slime molds and true molds to the larger, fleshy mushrooms. The parasitic fungi of northwestern North America have been emphasized; however, through exchange and purchase, representative materials of all groups from all over the world have been incorporated. Loans are freely available to individuals associated with recognized botanical institutions anywhere in the world. Specialists wishing to utilize the facilities of the Mycological Herbarium are welcome and are asked only to inform the Department of Plant Pathology, (509) 335-9541, of their desires in advance so that members of the department may be of maximum assistance to them.

Ownbey Herbarium

The Marion Ownbey Herbarium is an internationally recognized resource for research, teaching, and service. Located in Heald Hall, Room G-9, the herbarium houses 335,000 preserved plant specimens, primarily from the Pacific Northwest but including worldwide collections. In addition to native vascular plants and weeds, the herbarium contains mosses, liverworts, lichens, and special collections of seeds and cultivated plants. The herbarium is open from 9:00 a.m. to 4:00 p.m. five days a week and by appointment by calling (509) 335-3250; staff provide assistance to persons wanting to identify and learn about plants. Facilities include a small reference library, a wet lab, reprint and slide collections, computers, and special botanical indices.

Smith Soil Monolith Collection

The Henry W. Smith Soil Monolith Collection contains more than 150 preserved soil profiles, some as much as eight feet in length, representing soils from all of the geographic regions in the state of Washington and nine of the 11 soil orders in Soil Taxonomy. Soils that are particularly well represented in the collection are those of the Palouse region and those from eastern and central Washington that contain layers of volcanic ash from the many prehistoric and historic eruptions of volcanoes in the Cascade region. The collection is the work of Henry W. Smith, emeritus professor of soils at Washington State University. The soil monoliths constitute a very valuable resource for both teaching and research within the Department of Crop and Soil Sciences. The collection is located in Johnson Hall, Room 114, and may be viewed from an observation window any time the building is open. Persons or groups interested in touring the collection should contact Alan Busacca at (509) 335-1859.

Music and Theatre

The School of Music and Theatre Arts (SMTA) presents a varied program of concerts, recitals, plays, workshops, and master classes each year. These presentations given by faculty, students, and visiting artists are listed in “Arts and Lectures on the Palouse” calendar and in a monthly calendar of events which is available on the SMTA home page or by calling (509) 335-8525, the SMTA events line.

The Music Program, in addition to the presentations listed above, supports several performance organizations with enrollment open to all WSU students by audition. Students interested in continuing their musical experience through participation in one of the ensembles are encouraged to contact the Music Program for further information; call (509) 335-8524.

Jewett Observatory and University Planetarium

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

The University Planetarium is located in Sloan Hall, Room 231. Information about open house and group tours of either the observatory or the planetarium can be obtained by contacting the Program in Astronomy, (509) 335-6868.

The Ombudsman Office

The Ombudsman Office is a neutral and independent resource designated by the university to receive and investigate complaints, grievances, and suggestions and seek prompt, equitable, and reasonable solutions to personal and organization problems. Students, faculty, and staff may contact the office for confidential information and assistance. The office supplements rather than replaces other regular university appeal and grievance procedures. The office, located in Wilson 2, is open during the academic year from 8:00 a.m. to 5:00 p.m.; phone (509) 335-1195.

Speech and Hearing Clinic

The Speech and Hearing Clinic provides complete evaluative and rehabilitative services to students with speech, language, or hearing problems, including communication disorders involving defective articulation, stuttering, voice pitch and quality, and speech and language problems resulting from brain injury or neuromuscular disability. Students with central auditory processing disorders and learning disabilities may receive special help at the clinic. Speechreading and auditory training, as well as evaluations for fitting of hearing aids and assistive listening devices, are conducted.

Application may be made to the Speech and Hearing Clinic of the Department of Speech and Hearing Sciences, Daggy Hall, Room 133, (509) 335-1509.

Student Advising and Learning Center (SALC)

The Student Advising and Learning Center, located in Lighty Student Services Building, Room 260, is designed to help students improve academic performance. Students with questions on academic programs, degree requirements, certification into majors, regulations, and services, or students in need of help with study skills, reading, writing, test taking, or advising should call the center, (509) 335-6000. The center faculty and staff are responsible for:

• Coordination of advising.
• Access to Freshman Seminar Program.
• Assistance with study skills.
• Assistance with writing skills (in cooperation with the Writing Lab).
• Assistance with test-taking skills.
• Access to computer-based learning and multimedia development.
• Tutoring in a wide range of subjects.

SALC provides educational opportunities and retention services for students throughout the University. The center offers academic advising and counseling, individual and group tutoring, assistance to students with special learning needs, and media-based learning skills classes. Tutorial assistance in reading, writing, science, math, and study and test-taking skills is available. Tutorial assistance in most General Education Requirement courses is provided.

Students may be assigned an advisor in the SALC program upon entrance to the university or as a retention condition. Students may also be referred to the SALC Office for assistance.
at any time by faculty members, counselors, and others for any of the services it provides. The staff is available daily in Lighty Student Services Building, Room 260, (509) 335-6000.

**Student Computing Labs**
Student computing labs are located around the campus—public microcomputer labs and special-purpose computer labs.

The public microcomputer labs are made available to all WSU students. Students may elect either to purchase a pass which provides access to any and all public microcomputer labs for $50.00 per semester or to pay $1.50 per hour of lab use. These labs are equipped with IBM and Apple microcomputers. A variety of software and printing services are available. Some of these labs are available 24 hours per day, seven days per week, to facilitate student access. Contact Information Technology at (509) 335-0522 to obtain further information about the public microcomputer labs.

Some departments maintain special-purpose computer labs. These labs are available to students enrolled in certain courses with computer lab fees associated with them. Contact the department to obtain further information about these special-purpose computer labs.

**Student Health and Wellness Services**
Health and Wellness Services provide primary health care to students, including treatment for acute and chronic illness, injuries, accidents, women’s health, contraception, STDs, food preoccupations/disorders, pregnancy tests, allergy shots, immunizations, wart treatments, counseling, and information on health and preventive care. Our staff of MDs, PAs, Nurse Practitioners, and RNs see patients by appointment, with urgent care for emergencies available as well. Located in the same building with Pullman Memorial Hospital on the south end of campus, the clinic is open 9:00 a.m. to 5:45 p.m., Monday through Friday, and 10:00 a.m. to 2:30 p.m., Saturdays. When the clinic is closed, emergency care can be obtained through the hospital emergency room. Call (509) 335-3575 for information and appointments.

The Health and Wellness Services Wellness Programs are staffed by a substance abuse counselor, a sexuality education coordinator, and health educators. Located in the Administration Annex building, Room 301, the Wellness Program offices are open from 9:00 a.m. to 5:00 p.m. Monday through Friday. Call (509) 335-9355 for information.

**Information Technology Telephone Services**
The telephone lines into students’ rooms are operated by WSU. Students are not allowed to bill a third party call to a university telephone number. Students cannot accept collect calls.

Students will be personally responsible for all long distance charges. Recognizing students’ need to take care of business and keep in touch with family and friends away from campus, the Information Technology Help Desk can provide students with a PAC (personal authorization code) number which allows them to make long distance calls at a lower than the direct-distance-dialed rate. For international rates please contact our office. Call waiting, busy-number redial, three-party conference, and electronic voice mail (answering machine) are available as additional line features. Contact the Help Desk, (509) 335-0522, Information Technology Building, Room 2091, between 8:00 a.m. and 5:00 p.m., Monday through Friday.

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

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

For additional information, contact the Women’s Resource Center, Wilson Hall, Room 8, (509) 335-6849. The Women’s Resource Center is open from 8:00 a.m. to 5:00 p.m., Monday through Friday.
Educational Enhancement

Cooperative Courses with the University of Idaho

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

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

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

Extended University Services

Extended University Services (EUS) is a multi-faceted organization involved in the outreach efforts of Washington State University. EUS units work with university departments and administrative units to develop and deliver distance education programs, specialized academic program support, conferencing services, professional training, and telecommunication services to people throughout the state of Washington and beyond.

Extended Degree Programs (EDP): EDP supports WSU colleges and departments in delivering selected degree programs and semester-based credit courses to various sites in the state of Washington and around the world. Staff provide course design and delivery, admissions and registration, and advising services. EDP enables the College of Liberal Arts to deliver a BA in Social Sciences by distance learning technologies to adult learners in Washington and throughout North America. Call 1-800-222-4978 for more information.

Independent Study: As part of EDP, the Independent Study Program allows highly motivated individuals to study through flexible enrollment courses (correspondence courses). These courses may be used to fulfill requirements for baccalaureate degrees as well as for personal growth and professional development. Up to 25 percent of the credits for a baccalaureate degree may be taken through flexible enrollments courses from WSU. Catalogs are available through EDP.

Conferences and Institutes (C & I): This division plans and conducts noncredit programs, including conferences, institutes, seminars, short courses, and workshops to sites throughout the state of Washington and beyond. Offices are located in Pullman and Puyallup. The division draws upon the instructional resources of the university and outside content experts to meet dynamic and varied professional continuing education and training needs. Clients include business and industrial firms, government agencies, schools, professional associations and others interested in increasing their knowledge and professional competencies. C & I also programs for faculty development within WSU and serves leisure groups who want to learn through educational travel. Elderhostel, a statewide network of 30 education organizations offering low-cost, noncredit learning adventures for those over 55, is headquartered in C & I. C & I sponsors WSU Elderhostel programs in Seattle and Pullman. Call 1-800-942-4978 for information about available programs.

Tri-Cities University Center for Professional Education: The University Center for Professional Education, located at Washington State University Tri-Cities, expands the programming through that campus with professional education and training programs for businesses, organizations, and professionals.

The Central Administrative Office: The EUS Administrative Office provides overall administrative coordination for the organization and has responsibility for accounting, personnel, and travel.

Washington Higher Education Telecommunication System (WHETS): WHETS, a two-way audio-video interactive microwave system, brings WSU classes and programs to specified sites in the state including the WSU branch campuses in Spokane, Vancouver, and Tri-Cities. Other sites include the Intercollegiate Center for Nursing Education in Spokane, Seattle Central Community College, University of Washington, and Central Washington University, Wenatchee Valley College, and Yakima Valley College. WHETS currently delivers over 80 courses each semester in addition to providing extensive video conferencing services between sites. WHETS is a unit of Educational Telecommunications and Technology and provides technical, academic, and support coordination for courses and events utilizing the system.

Four-Year Degree Agreement Program ✔FYDA

Students at Washington State University follow many diverse paths to complete a bachelor's degree. Some students, however, want to complete their degrees in four years; some want to enter the full-time workforce as soon as possible; others plan to continue their education and do not want to prolong their undergraduate study; and all want to save money.

A Four-Year Degree Agreement (FYDA) is available to any first-time freshman entering WSU who meets the necessary conditions (including being prepared, maintaining adequate progress and good academic standing, seeking and following academic advice) and chooses a participating degree program. Washington State University then agrees to provide adequate advising, available courses, and options for completion, or an alternative to pay the tuition for the student to take an unavailable course or courses in a later term. The FYDA program supports students in other important ways: 1) Students receive a detailed course sequence, showing exactly what needs to be taken in order to complete their degree program; 2) Departments know the students who are participating in the program from their first semester and can give early support and mentoring; and 3) The program coordinator tracks students' progress and provides support through workshops, newsletters, and individual advising.

Degree programs offering a Four-Year Degree Agreement are indicated by ✔FYDA next to the degree program sequence in this catalog. Students who are interested in the program may sign up with their departmental advisor. For more information, contact the Registrar's Office, P.O. Box 641035, Pullman, WA 99164-1035, or call (509) 335-FYDA.

University Honors Program

The University Honors Program (UHP) at Washington State University is one of the oldest and most well-known honors programs in the nation. A free-standing academic unit, the UHP offers highly motivated and talented students an alternative curriculum taken in place of general undergraduate requirements. The UHP provides an enriched intellectual experience for its students. They pursue a broad and comprehensive general program as they specialize in their chosen majors. Through completion of an enriched series of small classes, seminars and independent study options, students admitted into the program acquire a greater understanding of the natural and social sciences, of the arts, of language and literature, and of the historical and philosophical development of the cultures of the world. The University Honors Program aims to support the best possible teaching and learning circumstances for participating faculty and students. It has as its primary goal the fostering of genuine intellectual curiosity and the encouragement of a life-long commitment to learning.

Over 1000 students are enrolled in the University Honors Program. They come from all departments and colleges of the university, from agriculture to zoology, from engineering to English, from fine arts to economics. Honors is not a major in and of itself. Honors students, like other students, major in particular departments in preparation for professional careers. Yet in place of fulfilling the General Education Requirements expected of other students, honors students pursue an enriched, often interdisciplinary curriculum designed for active learners. During their four years at the university, university honors students receive extensive advising through the Honors Program and through their own academic departments. Honors students and regular students fulfill approximately the same number of required general education hours, but they do so in different classes. Honors courses are small and are taught by established faculty members. Based on an enriched, interactive
model rather than an accelerated curricular model, honors courses offer students the opportunity to establish close intellectual relationships with their instructors and peers.

**Admission to the University Honors Program**

Each year approximately 10-15 percent of entering first-year students are invited to join the University Honors Program. Incoming students are selected on the basis of high school grade point average, scores from college and pre-college testing programs, and information obtained from the student and from high school advisors. During the spring or summer preceding their first year, eligible students will receive letters inviting them to join the University Honors Program. Those who do not receive such letters but wish to investigate possible participation in the program should contact the Honors Center for information.

The eligibility of transfer and foreign students is evaluated on a case-by-case basis. Ordinarily, students are not considered for admission to the University Honors Program after the beginning of their junior year.

Students who are not admitted in the initial selection may petition to enter the University Honors Program at any time after the end of their first semester but no later than the beginning of their junior year. To continue participation in the UHP a student must maintain an overall B+ average (3.2). Students in the University Honors Program are not required to complete the General Education Requirements.

For more information on the University Honors Program, please refer to the departmental section of this catalog. Visit our web site, http://www.wsu.edu:8080/~honors/Honorshomepage1.html.

**International Programs**

International Programs (IP) at Washington State University has the overall responsibility for the university’s international activities and promotes, supports, and coordinates them. As the land-grant institution for the state of Washington, internationalization of its curricula and programs is an established priority. Internationalization is the incorporation of appropriate international content, materials, activities and understandings into the teaching, research and public service/outreach programs to enhance their relevance in an increasingly interdependent world.

International Programs at WSU is organized into four programmatic areas to serve its university-wide responsibilities.

Education Abroad provides both undergraduate and graduate students with academically relevant overseas study, and exchange programs and internships.

International Students and Scholars assists international students and visiting faculty at WSU in the legal requirements and academic and social adjustments necessary for a successful educational, research, and cultural experience at WSU.

Intensive American Language Center teaches the English language to international students and scholars, many of whom then attend WSU. (See below.)

Development Cooperation has administrative responsibility for the establishment, facilitation and coordination of university research, economic development and inter-institutional coordination in developing and industrialized countries. For more information about International Programs contact the IP Administration Office, French 130, phone (509) 335-2541, FAX:(509) 335-1060, e-mail INTLPROG@wsu.edu or our website at http://www.ip.wsu.edu/.

**Intensive American Language Center (IALC)**

The Intensive American Language Center provides concentrated English language training for nonnative speakers of English who are preparing for university studies or who seek to improve their English for professional or personal purposes. Classes meet four to five hours per day, five days per week for eight-week sessions. There are five eight-week sessions per year. Sessions run concurrently with WSU’s academic calendar. Thus, students who wish to enter WSU and who are otherwise eligible for admission can move directly to university studies upon successful completion of the Language Center curriculum.

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

Any non-native speaker of English, who is at least 18 years of age, knows the English alphabet and corresponding sounds, and has completed secondary school may attend the Intensive American Language Center. Students may enroll full- or part-time, depending on their visa status. The Language Center also negotiates special courses or package programs with domestic and foreign agencies on a contract basis. To apply or to obtain more information about the language center, contact International Programs (IALC), McAllister Hall, Room 116, phone (509) 335-6675, fax (509) 335-1141, e-mail ialc@wsu.edu, or visit our web site, http://www.ialc.wsu.edu.
Research Facilities

Apache Point Observatory
The Apache Point Observatory (APO) includes a 3.5-meter telescope operated by the Astrophysical Research Consortium (ARC), of which WSU is a member. The telescope is located in the Sacramento Mountains in southern New Mexico and has state-of-the-art instrumentation for optical and near-infrared observing. The telescope is generally operated remotely with commands and data transferred over the Internet, although observers are required on site in some cases. Additional information about the observatory is maintained on the APO web site, http://www.apo.unm.edu, or by calling the Program in Astronomy at (509) 335-6868.

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

Electron Microscopy Center
The Electron Microscopy Center (EMC) is a research and training facility for the study of biological and non-biological materials. The EMC provides electron microscopy and light microscopy equipment for observation and analysis of a diverse array of specimens. Students, faculty and staff can access the EMC for formal and informal training, and for conducting research through flexible conditions designed to ensure success in acquiring and analyzing specimen images. The center offers courses in electron microscopy for graduate and undergraduate students each semester.

The EMC maintains two TEMs, a STEM, a SEM, a confocal microscope and various light microscopes. Three of the electron microscopes also have EDX analyzers for elemental analysis. All necessary ancillary equipment, computers for image processing and analysis, and three photographic darkrooms are also maintained for student and faculty use. The center provides project consultation and has a skilled staff capable of assisting students and faculty in a wide range of research projects. Faculty and students are welcome to visit the EMC located on the ground floor of Science Hall. Inquiries about services and courses offered or class tours of the facilities can be made by calling (509) 335-3025.

Environmental Research Center
The Environmental Research Center is an all-university research unit. The center is the focal point for university development of interdisciplinary research on problems related to the environment. It provides an organizational and administrative structure to accommodate interdisciplinary environmental research projects which cut across departmental and college boundaries.

The center is closely integrated with the Academic Program in Environmental Science and Regional Planning, and students are encouraged to participate in the research projects carried out through it. In order to stimulate an awareness of environmental problems and contributions the university can make in solving them, the center acts as an information source for faculty and students of the university and for citizens of the state. It also assists in securing financial support for research projects involving faculty and students and acts as a liaison unit for inter-university and other cooperative activities dealing with environmental matters.

The center provides some direct support for graduate students and has sponsored a number of conferences and seminars on regional environmental problems.

GeoAnalytical Laboratory
The GeoAnalytical Laboratory is housed in the Geology Department and provides analytical services, primarily for geological research, using the most up-to-date analytical equipment. The laboratory comprises an automated Cameca electron microprobe for quantitative micro analysis and elemental mapping, a Siemens X-ray powder diffractometer for phase identification and crystal structure, an automated Siemens XRF and Scieux ICP/MS for routine major, trace and rare earth element analysis, a Finnigan-Mat gas source mass spectrometer for oxygen and hydrogen isotope determinations, and a radiocarbon dating facility. Most of this equipment is available to other departments and other institutions for a reasonable fee.

Other facilities available in the laboratory include rock slabbing, the making of thin and polished petography sections, and microphotography.

Information Technology
Information Technology (IT) provides an extensive offering of information processing services to the university community, as well as to a number of other governmental agencies and institutions in the Pacific Northwest. The primary resource for computing power is an IBM 3090-400J, an 80 MIP (Million Instructions Per Second) processor with 256 megabytes of expanded memory, 64 I/O channels, over 118 gigabytes of on-line disk storage, 8 cartridge tape drives, two reel tape drives, a 20,000 magnetic tape library, two impact printers, and two high-speed laser printers. Also available to users are the computing resources of a VAX 8350, a VAX 6320, a VAX 8200 and an AT&T 3B2/1000-80 supporting dial-in access, plus a variety of IBM and Apple microcomputers, and several special purpose computing systems. IT supports in excess of 4,000 computer workstations on both dedicated and switched and ethernet data communications networks. The workstations have access to the central administrative systems, an on-line library catalog, and all of the systems resident on IT’s processors. Communication links are also available to colleagues at other institutions and to supercomputing facilities via national and international networks such as NorthWestNet and NSFNet.

IT makes available to its users both interactive and batch computing support. The basic operating systems include VM/CMS, MVS, VMS, and UNIX. Available through these systems are programmer utilities, compilers, modeling languages, statistical packages, text processors, mathematical routines, graphics programs, image analysis systems, word processors, office automation systems, spreadsheet packages, database systems, and a myriad of other software products.

International Marketing Program for Agricultural Commodities and Trade Center
IMPACT is the acronym for the International Marketing Program for Agricultural Commodities and Trade established in the College of Agriculture and Home Economics in June 1985.

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

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

**Nuclear Radiation Center**

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

The center supports undergraduate and graduate education, with both facilities and instruction. Graduate students in engineering, physics, chemistry, geology, anthropology, food science, animal science, veterinary science and other fields may conduct their thesis research at the NRC.

Trace element analysis using neutron activation analysis (NAA) is routinely available at the center. This technique is applicable to analytical chemistry, geology, material science, biomedical research, environmental science, physics and other areas. Consultation is available to investigators with elemental analysis needs.

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

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

The NRC provides laboratory space for radiochemistry researchers and other projects and programs. A wide range of services and capabilities make the Nuclear Radiation Center ideally suited to support elemental analysis or radiation-related studies at Washington State University. Tours of the reactor facility can be arranged by calling (509) 335-7592.

**Social and Economic Sciences Research Center**

The Social and Economic Sciences Research Center has three primary goals: (1) to conduct research in the social, economic, and behavioral sciences that is responsive to the needs and concerns of the state, region, and local communities; (2) to maintain a telephone, mail, and face-to-face survey capability that can be utilized by university faculty and others for conducting research that improves the quality of social science, behavioral, and economic data; and (3) to provide research training for both undergraduate and graduate students in the social sciences. The clientele of the Social and Economic Sciences Research Center include the students, faculty, and administration of Washington State University, and the citizens and agencies of the state. Research facilities include the Public Opinion Laboratory, consisting of 52 personal computers, interviewing stations, laser printers, and related mail survey equipment, and a data processing center. The professional-technical staff of the center provides assistance in all facets of the research enterprise.

Faculty and students from social, behavioral, economic, and educational disciplines participate in center projects. Cooperation with other research centers and departments in the university lends a strong interdisciplinary emphasis to the work of the center.

Further information may be obtained by calling (509) 335-1511.

**State of Washington Water Research Center**

Federal legislation establishing the State of Washington Water Research Center, along with the 54 other water research centers and institutes throughout the United States and territories, outlines three major directives:

(1) support of research in multi-disciplinary and interdisciplinary water-related studies;

(2) assistance in the education and training of undergraduate and graduate students toward degrees in water-related professions through active participation in research projects; and

(3) dissemination of results of research and other current information on water-related issues through the distribution of technical and popular publications and through the sponsorship of conferences, seminars, workshops, and other meetings.

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

The center has fostered extensive research on Washington state’s water-related problems. Much of this research is also of regional and/or national significance. By 1997, over 410 projects had been funded through the center and completed with technical reports and journal articles distributed to the professional community and appropriate agencies. Over 1000 undergraduate and graduate students have been assisted in meeting their educational goals through their work on these projects to become the water scientists and engineers of today and tomorrow.

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

Further information regarding the program may be obtained by writing the Director, State of Washington Water Research Center, Washington State University, P.O. Box 643002, Pullman, WA 99164-3002, or by calling (509) 335-5531.
Admission and Financial Aid

General Information

Admission to Washington State University is granted without regard to age, sex, race, religion, color, handicap, national or ethnic origin, or marital status. Admission to the university is granted to eligible applicants prior to or to registration but not after the tenth day of classes for each semester.

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

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

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

Application forms are available in the high schools and community colleges of Washington and from the Office of Admissions, P.O. Box 641067, Pullman, WA 99164-1067, or by calling (509) 335-5586.

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

Retention of Students

The grade point average for freshmen entering from high school in the fall semester 1997 was 3.40. Of the 2,301 freshmen who entered in the fall semester 1996, 2,183 were enrolled in the spring of 1997, and 1,966 continued their enrollment in the fall semester 1997.

Freshman Admission Requirements

Freshman applicants will be considered for admission on the basis of an Admissions Index (AI) which will be calculated using the high school grade point average and test information taken from the results of the Washington Pre-College Test (WPCT) if taken prior to June 1, 1989, the Scholastic Aptitude Test (SAT) or the American College Test (ACT). The AI is calculated on the official transcript information provided at the time of application. In addition, freshman applicants will be required to submit a high school transcript showing completion of no less than the following course work in grades 9-12:

- English: Four years (three of which must be composition and literature).
- Mathematics: Three years college preparatory mathematics (one year of geometry and two years of algebra including an introductory component of trigonometry).
- Science: Two years (including at least one year of laboratory science: biology, chemistry or physics).
- Social Science: Three years (including at least one year of history).
- Foreign Language: Two years of a single foreign language (or approved sign language).
- Fine Arts: One year of fine, visual or performing arts or one additional year of academic elective.

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

Applicants who have not graduated from high school at the time of application must maintain a satisfactory record, complete all required courses specified for admission to WSU, and provide evidence of graduation prior to enrollment.

Freshman applicants over 21 years of age should contact the Office of Admissions concerning requirements for re-entry students.

Graduates of unaccredited high schools may be required to pass special validating examinations and should write to the Director of Admissions for further information.

Preference will be given qualified freshman applications received by May 1. Applications for spring semester admission are accepted from September 15 to December 1 (or until the class is filled).

Transfer Admission Requirements

Transfer students with 27 semester (40 quarter) hours of transferable college credit at time of application will normally be admitted as space allows if they show evidence of a 2.0 (C) or higher cumulative grade point average in transferable work completed at an accredited post-secondary institution.

Transfer applicants with fewer than 27 semester (40 quarter) hours of transferable credit must also meet the admission requirements for freshmen, including meeting the current admission index (based on high school grade point average and standardized test scores) and course requirements. Students with fewer than 27 semester hours of credit should refer to the Freshman Admission section in this bulletin for details on admission requirements. In all cases, students must maintain a cumulative college grade point average of at least 2.0 in transferable work to remain eligible for admission.

For fall semester, qualified students will be offered admission on a first-come, first-served basis from December 1 to May 1 (or until the class is filled). For spring semester, qualified students will be offered admission on a first-come first-served basis from September 15 to December 1 (or until the class is filled).

Eligible transfer students who hold the approved Associate Degree from a Washington community college who apply before May 1 for fall or December 1 for spring, but after the class is filled, will be assigned a priority number to ensure priority consideration for the next available term.

A complete application includes the application form, the official high school transcript, the Washington Pre-College Test Data Sheet or the score report of the SAT or ACT, and a $35 nonrefundable application fee.

Students who have been offered admission to the university may be invited to join WSU's Honors Program if they have shown unusual scholastic ability and intellectual achievement in high school. Transfer and international students are admitted to the Honors Program on an individual basis after eligibility has been determined. Questions should be directed to the University Honors Program, P.O. Box 645120, Pullman, WA 99164-5120, or call (509) 335-4505.

Transfer Credit Policy

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

The maximum transfer credit allowed from accredited two-year community or junior colleges, or from CLEP, AP, IB, or military credit shall be 60 semester (90 quarter) hours toward a baccalaureate degree irrespective of when those credits were earned. The maximum allowable credit toward a four-year degree from a four-year institution or from a combination of all institutions shall be 90 semester (135 quarter) hours. For a five-year degree program the maximum credit allowed for transfer from a four-year institution or a combination of all institutions shall be 120 semester (180 quarter) hours of credit.

Associate Degree Transfer

Students who have completed an approved Associate of Arts or Associate of Science degree at a Washington community college or the Associate of Arts - Oregon Transfer degree from an Oregon community college, including a course pattern which approximates the General Education Requirements (GERs) for graduation from Washington State University, as determined by the Office of Admissions at Washington State University, will be considered to have fulfilled the lower-division General Education Requirements for graduation. Students will also be required to meet the upper-division General Education Requirements as well as any departmental and college graduation requirements.

Washington State University recognizes academic credits earned at other collegiate institutions which are essentially equivalent in academic level.
and content to work offered at WSU. Toward this end, the university subscribes to the “Policy on Inter-College Transfer and Articulation Among Washington Public Colleges and Universities” endorsed by the public colleges and universities of Washington and the State Board for Community and Technical Colleges and published by the Higher Education Coordinating Board. The policy deals with the rights and responsibilities of students and the review and appeal processes in transfer credit disputes. Transfer students are encouraged to contact the Office of Admissions, (509) 335-5586, with any questions regarding the transfer of credit.

Adult Student Admission
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 21 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 to WSU Spokane, WSU Tri-Cities, WSU Vancouver
The WSU branch campuses, located in Spokane, Tri-Cities, and Vancouver, offer a variety of undergraduate and graduate degree programs. All three branches have graduate education; WSU Tri-Cities and WSU Vancouver also offer baccalaureate degrees.

WSU Tri-Cities and WSU Vancouver provide upper-division undergraduate education for individuals in those urban areas. Students need to complete their lower-division course work before enrolling at a branch campus. In some instances, students are allowed to attend a local community college and a WSU branch campus concurrently. Contact the branch campus directly for more information about this policy as well as specific admission requirements.

Academic programs offered and branch campus addresses are listed on pages 33 and 34 of this catalog. Applications can be obtained from the branch campuses or the Fullman Office of Admissions. A complete application includes the application form, an official transcript sent directly from each college or university attended showing work completed at the time of application, and a $35 nonrefundable application fee. Applications will not be considered or processed after the tenth day of classes for any semester. Final and complete transcripts 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 Not Enrolled the Previous Semester
Students formerly enrolled at Washington State University and who wish to return must submit a Former Student Application for Admission. Preference will be given to applications received by May 1 for fall semester and December 1 for spring semester. Applications submitted after the tenth day of classes in any semester will not be considered.

Former students returning whose previous academic record at Washington State University is unsatisfactory will be required to follow established academic reinstatement procedures prior to admission. Former students returning who have attended other institutions since last enrolled at Washington State University must submit an official transcript directly from each institution attended. Applicants will normally be required to have at least a 2.0 (C) cumulative g.p.a. in all such work.

Requests for a Former Student Application should be made to the Office of Admissions.

Foreign Student Admission Requirements
Washington State University encourages the application of qualified students from other nations to complement its cosmopolitan student community. Applicants must submit official copies of all academic records, the Test of English as a Foreign Language (TOEFL) scores, and evidence of adequate financial resources to meet the costs of the proposed study. Each application is carefully considered on its individual merits.

High School Cooperative Program
High school students may enroll as part-time students at Washington State Uni-
are required to submit a nonrefundable advance payment on tuition and fees in the amount of $50 prior to final admission. The advance payment will be requested of those applicants who are eligible for admission and should not be submitted until notice of eligibility is received by the applicant. The payment should be sent directly to the Controller, WSU, Pullman, WA 99164-1025, not later than May 1 for freshmen and transfers seeking admission for the fall semester. The payment deadline is December 1 for all spring semester applicants.

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.

Estimated 1998-99 Undergraduate Yearly Expenses

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<thead>
<tr>
<th>Direct Costs</th>
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<th>Nonresident</th>
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</thead>
<tbody>
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<td>Tuition</td>
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<td>$10,554</td>
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<td>Room and Board</td>
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<td>5,305</td>
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<td>Indirect Costs</td>
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<td></td>
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<tr>
<td>Books/Required Fees</td>
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<tr>
<td>Transportation and Miscellaneous</td>
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<tr>
<td>Totals</td>
<td>$12,442</td>
<td>$19,600</td>
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</table>

Note: The above costs are subject to change.

Other Costs

$120 Summer New Student Orientation Program.
$60 Security deposit required of those living in residence halls.
$39 Motor vehicle registration for on-campus students.
$45 Motor vehicle registration for off-campus students.

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

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

Note: Your registration for courses at Washington State University constitutes a legal obligation to pay tuition and fees, subject to the University’s Refund Policy if you officially withdraw. You will be charged a $15.00 processing fee for any dishonored check drawn by you or others for your account.

Student Financial Assistance/Scholarships

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

Students wishing to apply for financial aid to attend WSU must submit the federal form called the Free Application for Federal Student Aid (FAFSA). These applications are available from all colleges and universities, public high schools, and public libraries. Be sure to list WSU as a school to receive your data. Our Title IV Code is 003800. Your application must be received by the Federal Processing Center by March 1 to be considered an on-time applicant. Please allow 7-10 days for mail time. If you miss the priority deadline, we will encourage you to apply. After the March 1 deadline, applications are delayed on the basis of availability. Loans are available to all students. Questions should be directed to the Office of Student Financial Aid, Lighty Student Services Building, Room 380, P.O. Box 641068, Pullman WA 99164-1068, (509) 335-9711. A wide variety of scholarships are also available to new and continuing students. These opportunities may be through the university-wide application, the student’s academic college or department, or through outside scholarship donors. Application requirements and due dates vary and are listed in the brochure, Financial Aid and Scholarship Opportunities. Questions should be directed to the Office of Scholarship Services, Lighty Student Services Building, Room 380 H, P.O. Box 641069, Pullman, WA 99164-1069, (509) 335-1059.

Students with Disabilities

The state of Washington administers several programs of assistance to disabled students.

Blind students who are residents of the state of Washington may receive financial assistance under provisions of either RCW 28B.10.210 through 28B.10.220 or RCW 74.16.011 through 74.16.183. Inquiries concerning eligibility under this program should be addressed to Services for the Blind, 3411 South Alaska Street, Seattle, WA 98118.

Other students or prospective students who are residents and have a vocational handicap may be eligible for assistance through the vocational rehabilitation program administered by the state of Washington. Information concerning eligibility should be directed to the Department of Social and Health Services, Division of Vocational Rehabilitation, Olympia, WA 98504.

Federal Veterans Benefits

The Veterans Affairs Office cooperates with the Veterans Administration in carrying out the provisions of the public laws established to give educational benefits to veterans and qualifying dependents of veterans whose death or permanent and total disability is service connected.

Students should apply for admission to the university and for their VA benefits simultaneously. Application for benefits should be made to the WSU Veterans Affairs Office. There is currently at least a two-month delay between approval of the application and receipt of the first monthly benefits check for most students.

Students receiving benefits may be eligible for tutorial assistance or for Veterans work study. Information and application forms for all veterans programs may be obtained from the Veterans Affairs Office, French Administration Building, Room 346, Pullman, WA 99164-1055, or by calling (509) 335-1857.

Waiver of Fees for Children of Law Enforcement Officers and Firefighters

Students who are the children of law enforcement officers or firefighters who lost their lives 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 exempted from the payment of full tuition.

Washington law defines a totally disabled individual for waiver purposes as a person who has become permanently disabled for life by bodily injury or disease and is thereby prevented from performing any occupation or gainful pursuit. Students claiming this special exemption should apply to the Veterans Affairs Office, French Administration Building, Room 346, and provide legal documentation of the death or disablement under the conditions prescribed for eligibility in RCW 28B.15.380.

Waiver of Fees for Persons Age 60 and Over

Persons age 60 or over who are residents of the state of Washington may enroll under the tuition and fee waiver. Applicants will be asked to sign a statement that courses taken under the fee waiver will not be used toward credentials, salary schedule increases or degrees. Tuition-exempt students will be admitted to class on a space-available basis. All students enrolling under the fee waiver are responsible for paying a $5 nonrefundable registration fee, plus any special course fees, or other fees as appropriate.

Individualized instruction such as independent study, thesis, dissertation, research, internships, tutorials, private lessons, practica, or self-sustaining courses (including summer session) may not be taken under the fee waiver.

Credit Enrollments: Enrollment for credit under the fee waiver is limited to 6 hours per semester. Applicants must be admitted to the university and obtain the fee waiver form from the Registrar’s Office, prior to registration. Detailed procedures for credit enrollments under the fee waiver are listed in the Time Schedule.

Audit Enrollments: Auditing under the fee waiver is limited to two courses per semester. Laboratory courses may not be audited. Applicants wishing to audit should report to the Registrar’s Office during the first week of classes to obtain the permission to audit card. The instructor’s signature is required for auditing and cannot be obtained prior to the first day of classes.
Waiver of Fees for WSU Staff/Faculty

A fee waiver option is available to full-time classified staff, faculty, and exempt employees who wish to enroll for up to 6 credits per semester or 4 credits in summer session. Employees enrolling for more than the credit limit pay full fees based on residency status for all credits over the limit. Qualified personnel who wish to enroll under this program must follow regular admission procedures and present a completed staff/faculty registration authorization form at the time of enrollment. Complete information on this fee waiver program listed in the Time Schedule.

Waiver of Fees for State of Washington Classified Employees

A fee waiver option is available to full-time permanent classified employees of a state agency who have been certified by the agency as eligible. The state employee must be admitted to the university and submit an approved tuition waiver request form to the Registrar's Office 15 working days before the beginning of each semester. Participants will be assessed a $30 nonrefundable fee and are subject to the same limitation as fee waiver students age 60 and over, listed above. Contact the branch campus registration office or the Pullman Registrar's Office for forms.
Housing

Twenty-one residence halls, including co-educational, single-sex and ag e-restricted halls, provide space for 4,600 students at the university. Additionally, 2,200 students reside in Greek chapter houses. Many of these living communities focus around particular academic, social or international issues. These include a Scholars Hall, Wellness Hall, and a Math, Science and Engineering Hall, as well as an International House and halls designed specifically for the success of new students. Twenty-six (Inter)National Fraternities and 14 (Inter) National Sororities currently maintain chapters ranging in size from 40 to 110 people. Most sororities and fraternities maintain chapter houses. Facilities for physically challenged students are also provided.

Students living in residence halls, fraternities and sororities elect their own officers, and each community affords many opportunities for leadership experience. The Residence Hall Association acts on behalf of the residence halls, as well as coordinates university-wide hall programming. Panhellenic and Interfraternity Council are the governing bodies for the Greek system and work together to promote scholarship and other programming activities. Residence hall information may be obtained by writing to Housing Services, Streit-Perham Administrative Office, P.O. Box 641726, Pullman, WA 99164-1726. For information on sororities and fraternities, please write to Panhellenic and/or Interfraternity Council, Streit-Perham Administrative Office, P.O. Box 641724, Pullman, WA 99164-1724.

Housing Regulations

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

Residence Halls and Dining Centers

Washington State University can normally provide space in its residence halls for most beginning students who request it. The estimated cost of room and board per person, multiple occupancy with a level-two dining account for the 1998-99 academic year is $4,540. This amount is to be paid prior to registration or on an arranged installment basis. A security deposit and a signed housing and dining contract are required before space can be reserved.

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

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

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

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

Family/Graduate Student Housing

The university maintains 694 unfurnished apartments (one-, two-, and three-bedroom) for families and 59 furnished, studio apartments for unmarried, graduate students. Furniture may be rented on a piece by piece or full apartment basis for family apartments. Apartments are assigned from a waiting list based on the date the completed application and $60 refundable deposit are received. Units for use by handicapped students are available on a limited basis. Information and applications may be requested by calling Housing Reservations at (509) 335-4577. Written requests may be mailed to: Housing Reservations, WSU Housing Services, P.O. Box 41726, Pullman, WA 99164-1726.

Single Student Apartments

The university operates 266 apartments that are available to unmarried students desiring apartment-type living. Sophomores and above are eligible for this type of housing. Apartments are rented only to full groups (one person per bedroom) of the same sex. Units are two-, three-, and four-bedroom and are completely furnished except for linen, kitchen utensils, cleaning equipment, and study lamps. Assignments are made from a waiting list based on the date a completed group application is received. Information and applications may be requested by calling Housing Reservations at (509) 335-4577. Written requests may be mailed to: Housing Reservations, WSU Housing Services, P.O. Box 641726, Pullman, WA 99164-1724.
Tuition and Fees

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

Tuition, fees, and other charges are subject to change and are effective when established by the legislature of the state of Washington and adopted by the WSU Board of Regents. The amounts listed below were estimated at the time of publication and are for advisory purposes only. Pending legislation may result in changes following publication of this catalog.

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

### ESTIMATED 1998-99 REGISTRATION FEES

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<tr>
<th></th>
<th>Undergraduate</th>
<th>Graduate</th>
<th>DVM</th>
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<tbody>
<tr>
<td>FULL-TIME FEES</td>
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<td>Resident (10-18)</td>
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<td>Resident-Gulf War Veteran</td>
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<td>Nonresident (10-18 hrs)</td>
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</tr>
<tr>
<td>Nonresident (19 hrs and above)</td>
<td>5,277.00+</td>
<td>6,690.00+</td>
<td>11,076.00+</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PART-TIME FEES (per credit hour)</th>
<th>Undergraduate</th>
<th>Graduate</th>
<th>DVM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident</td>
<td>$170.00</td>
<td>$267.00</td>
<td>$436.00</td>
</tr>
<tr>
<td>Nonresident</td>
<td>528.00</td>
<td>669.00</td>
<td>1,108.00</td>
</tr>
<tr>
<td>Persian Gulf Veteran</td>
<td>98.00</td>
<td>152.00</td>
<td></td>
</tr>
</tbody>
</table>

### SPECIAL REGISTRATION FEES 1998-99

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Cooperative</td>
<td>$230.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V M 601P and 602P</td>
<td>1,985.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate Leave Status</td>
<td>25.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auditing a Course</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>charge for each audit hour</td>
<td>52.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(does not apply to full-fee-paying students)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Challenging a Course</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>charge for each challenge examination petition</td>
<td>159.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Consult Time Schedule for additional fees related to specific courses.

### OTHER FEES AND CHARGES

**Adding a course**
- charge for each course added after the 30th day or dropped after 10th day of semester: $5.00
- Admission application, undergraduate (nonrefundable): 35.00
- Basic Skills Proficiency Test: 35.00
- Copyright: 20.00
- Dishonored checks, service charge: 15.00
- Entrance qualifying graduates of unaccredited high schools test: 10.00
- Foreign language reading examination: 10.00
- Foreign Student Orientation (required of all new foreign students): 25.00
- Graduate School application: 25.00
- Graduation application, bachelor’s degree: 29.65
- Graduation application, master’s and doctor’s degrees: 47.34
- Cougar card, charge for replacement: 5.00
- Late payment after third week of semester: 50.00
- Late registration on or before 10th day of semester: 25.00
- Late registration after 10th day of semester: 100.00
- Medical expense insurance (estimated annual cost) (optional for all but foreign students): 450.00
- Microfilming (applicable to PhD and EdD degree candidates only): 60.00
- Placement Bureau Credential Service (fee assessed after graduation for each set of credentials): 3.00
- Re-enrollment fee (charged to students who pay tuition and fees after disenrollment for nonpayment): 100.00
- Sponsored Foreign Student Administrative Charge (each term): 225.00
- Sports Pass (optional)
  - Fall and Spring Semester All-Sports Pass: 70.00
  - Fall Semester Sports Pass: 60.00
  - Spring Semester Sports Pass: 35.00
- WSU Health and Wellness Services Fee (per semester): 63.50
- (fee assessed to every student registered for 7 credits or more)
- Teacher’s Statutory Certification: 22.00
- Transcript (per copy): 3.70
- Veterinary Medicine application: 25.00
- Washington Student Lobby (optional): 1.00

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

### Resident Status

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

The administration of resident status shall be the responsibility of the Board of Regents. The Office of Student Affairs is assigned the responsibility to represent the Board of Regents on questions of resident status.

A resident student is one who is either financially dependent upon a parent or legal guardian who maintains a bona fide domicile in the state of Washington or a financially independent student who maintains a bona fide domicile in the state of Washington for other than educational purposes. Financial dependence or independence shall be determined by the amount and source of student finances and whether or not the student has been claimed as a deduction on federal income tax forms in the calendar year immediately preceding the semester for which residency is sought. The term domicile denotes a person’s true, fixed and permanent home and place of habitation.

Active duty U.S. military personnel stationed in Washington may request a waiver of non-resident fees through the WSU Veterans Affairs Office. Their spouses and dependent children shall be classified resident.

Evidence to be considered in verifying Washington residency primarily for purposes other than education must have been extant no less than 12 consecutive months and may include the following:

1. Evidence of student’s financial dependence or independence shall be determined by the amount and source of student finances and whether or not the student has been claimed as a deduction on federal income tax forms in the calendar year immediately preceding the semester for which residency is sought.
2. The term domicile denotes a person’s true, fixed, and permanent home and place of habitation.
3. Evidence to be considered in verifying Washington residency primarily for purposes other than education must have been extant no less than 12 consecutive months and may include the following:

- Evidence of student’s financial dependence or independence shall be determined by the amount and source of student finances and whether or not the student has been claimed as a deduction on federal income tax forms in the calendar year immediately preceding the semester for which residency is sought.
- The term domicile denotes a person’s true, fixed, and permanent home and place of habitation.

1. Registration of motor vehicles, motor homes, travel trailers, boats or other personal property.
2. Driver’s license.
3. Employment records.
4. Income tax returns.
5. Voter registration.
6. Selective service registration.
7. Purchase of primary residence, lease agreement or monthly rental receipts.
8. Resident status of students in schools attended outside the state of Washington.
9. Membership in professional, business, civic or other organizations.
10. Records of checking or savings accounts and safety deposit box rental.

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

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

Appeals of institutional determination of classification shall be subject to court review only under procedures described in Chapter RCW 28B.19. If erroneous, untrue, or incorrect information submitted on an application results in an improper classification of resident or nonresident status or a final determination is reversed through the appeals process, institutions shall recover from the student or refund to the student, as the case may be, an amount equal to the total difference in tuition and fees had proper classification been made.

In accordance with RCW 28B.15.014 certain nonresidents may be exempt from paying the nonresident tuition and fee differential. To be eligible for an exemption a nonresident student must provide documented evidence that the student resides in the state of Washington and (1) holds a graduate service appointment involving not less than 20 hours per week; (2) is employed by an academic department in support of instructional or research programs involving not less than 20 hours per week; (3) is a faculty member, classified staff member, or administratively exempt employee holding not less than a half-time appointment or the spouse or dependent child of such a person; (4) is active-duty military personnel for the first 12 months stationed in the state of Washington; or (5) is an immigrant having refugee classification from the U.S. Immigration and Naturalization Service or the spouse or dependent child of such refugee, if the refugee (a) is on parole status, or (b) has received an immigrant visa, or (c) has applied for United States citizenship. Exemption from nonresident tuition and fee differential shall apply only during the term(s) such person shall hold such classification, appointment, or be employed. To determine if you qualify for one or more of these exemptions, graduate students may apply at the Graduate School, French Administration Building, Room 324, and undergraduates may apply at the Office of Student Affairs, Lighty Student Services Building, Room 360.

Refund Policy

Tuition, operating, and student services and activities fees will be refunded in full if the student officially withdraws from the university prior to the sixth day of class of the semester for which fees have been charged. If official withdrawal occurs after the fifth day of the semester, the following refund will apply:

<table>
<thead>
<tr>
<th>Week</th>
<th>Refund Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>80% refund</td>
</tr>
<tr>
<td>3</td>
<td>80% refund</td>
</tr>
<tr>
<td>4</td>
<td>70% refund</td>
</tr>
<tr>
<td>5</td>
<td>60% refund</td>
</tr>
<tr>
<td>6</td>
<td>60% refund</td>
</tr>
<tr>
<td>7</td>
<td>50% refund</td>
</tr>
<tr>
<td>8</td>
<td>50% refund</td>
</tr>
<tr>
<td>9</td>
<td>40% refund</td>
</tr>
<tr>
<td>10 and after</td>
<td>0% refund</td>
</tr>
</tbody>
</table>

Weeks during which the university is on vacation for the entire week do not count in this refund schedule.

For students disenrolled for nonpayment, only 60% of the charges for tuition, operating, and student service and activity fees will be cancelled. Thus, such students will be liable for the balance remaining.

If a student has the optional student medical insurance, the student must come to French Administration Building, Room 232, and cancel it or the student will be liable for the premium.

An administrative fee of the lesser of 3% of the assessed tuition and mandatory fees or $100 will be charged against the refund. Other amounts owed by students, for benefits or services received, will be deducted from the refunded fees.

For short courses and sessions of less than four weeks’ duration, the refund period is 24 hours after the official start of the session.
Agriculture and home economics expertise is vital to the well-being of the state and nation. The College of Agriculture and Home Economics is responsible for generating and disseminating knowledge about physical, biological, social, and economic aspects of agriculture, natural resources, and family. These responsibilities are met through formal classroom instruction, ongoing research programs, and outreach programs of cooperative extension. All of these contribute to the development of Washington’s human and natural resources.

The college’s 11 teaching departments offer approximately 30 majors that prepare professionals for careers in food production, processing, and distribution and in areas of individual and family health and well-being. Students receive a solid base in science and a technological grounding that enables them to remain abreast of the dynamic fields of agriculture and home economics. Study programs also help prepare graduates to live and work in our environmentally conscious and globally focused economy and society.

Agriculture is one 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 offers an increasing number of job opportunities. Programs in agriculture prepare students for a wide variety of careers including food processing, pest management, natural resource management, business and finance, and sales and distribution of food products. Graduates are qualified to be agriculture teachers, media specialists, engineers, landscape architects, or other agricultural industry representatives. Students who earn graduate degrees are prepared to follow scientific careers in research, college teaching, cooperative extension, and highly technical pursuits in industry and government.

College programs in home economics prepare students for positions as dietitians, parent educators, consumer and family management consultants, and directors of aging programs. Students may wish to prepare for careers in apparel, merchandising, interior design, consumer services, commercial food service, community health, or journalism. Graduates are prepared to teach in public schools or community colleges, to work in adult education, and to administer and supervise preschool and child care centers. Those who earn master’s degrees are educationally qualified to fill positions in research, cooperative extension, governmental agencies, foreign service, college teaching, and business.

The requirements for admission to the College of Agriculture and Home Economics 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 may 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 Agriculture and Home Economics at Washington State University should concentrate as much as possible on general education and departmental requirements normally scheduled during the freshman and sophomore years, with particular attention to those subjects required for the intended majors.

Requirements for Graduation

Requirements for graduation in the College of Agriculture and Home Economics 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 Degrees

<table>
<thead>
<tr>
<th>Degree</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Science in Agriculture</td>
<td>Biological Systems Engineering</td>
</tr>
<tr>
<td>Agricultural Communications</td>
<td>Biological Systems Engineering</td>
</tr>
<tr>
<td>Agricultural Education</td>
<td>Biological Systems Engineering</td>
</tr>
<tr>
<td>General Agriculture</td>
<td>Biological Systems Engineering</td>
</tr>
<tr>
<td>Integrated Pest Management</td>
<td>Entomology</td>
</tr>
</tbody>
</table>

Bachelor of Science

<table>
<thead>
<tr>
<th>Degree</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agribusiness</td>
<td>Agricultural Economics</td>
</tr>
<tr>
<td>Agricultural Economics</td>
<td>Agricultural Economics</td>
</tr>
<tr>
<td>(including agricultural production and resource management; and food and resource economics)</td>
<td></td>
</tr>
</tbody>
</table>
Bachelor of Science (continued)

<table>
<thead>
<tr>
<th>Degree</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Arts</td>
<td>Apparel, Merchandising, and Textiles</td>
</tr>
<tr>
<td>Human Development</td>
<td>Human Development</td>
</tr>
<tr>
<td>(including early childhood, family studies, family and consumer science education, and preschool-third grade)</td>
<td></td>
</tr>
<tr>
<td>Interior Design(^1)</td>
<td>Apparel, Merchandising and Interior Design</td>
</tr>
<tr>
<td>Bachelor of Science</td>
<td></td>
</tr>
<tr>
<td>Human Nutrition and Foods(^6)</td>
<td>Food Science and Human Nutrition</td>
</tr>
<tr>
<td>(including dietetics and research)</td>
<td></td>
</tr>
<tr>
<td>Master of Arts</td>
<td></td>
</tr>
<tr>
<td>Apparel, Merchandising, and Textiles</td>
<td>Apparel, Merchandising and Interior Design</td>
</tr>
<tr>
<td>Human Development</td>
<td>Human Development</td>
</tr>
<tr>
<td>Interior Design</td>
<td>Apparel, Merchandising and Interior Design</td>
</tr>
<tr>
<td>Master of Science</td>
<td></td>
</tr>
<tr>
<td>Food Science</td>
<td>Food Science and Human Nutrition</td>
</tr>
<tr>
<td>Human Nutrition</td>
<td></td>
</tr>
<tr>
<td>Doctor of Philosophy</td>
<td></td>
</tr>
<tr>
<td>Nutrition</td>
<td>Nutrition</td>
</tr>
</tbody>
</table>

\(^1\) Accredited by Accreditation Board for Engineering and Technology
\(^2\) Accredited by the American Society of Landscape Architects
\(^3\) Accredited by Society of American Foresters
\(^4\) Accredited by the American Society of Range Management
\(^5\) Accredited by the Foundation for Interior Design Education Research
\(^6\) The dietetics program is accredited by the American Dietetic Association.

COLLEGE OF BUSINESS AND ECONOMICS

A. Gale Sullenberger, Dean

The programs of the College of Business and Economics provide instruction, research, and public service. The Vision, Mission and Goals statements below guide these activities:

Vision:
The vision of the College of Business and Economics is to be recognized and valued as an innovative leader in business education and research. We will offer the best undergraduate programs in the Northwest, provide high-quality graduate programs, produce useful research, and expand educational access.

Mission:
The mission of the College of Business and Economics is to produce graduates who have the intellectual capabilities and skills necessary for them to be successful in their chosen fields in today’s increasingly competitive global and technological business environment. The CBE is committed to expanding the diversity of the student body and faculty. As part of a tradition of a land-grant university, our core activities are undergraduate and graduate education, research, and service. We will continue to foster the synergies that exist among these activities. The College of Business and Economics will strive to: (1) educate graduates with the skills essential to critical thinking, problem solving, communication, teamwork, leadership, and ethical decision-making; (2) critically examine and extend existing knowledge; (3) effectively disseminate state-of-the-art knowledge to students, colleagues, business, government, and other people whom we serve; and, (4) reach out internationally, with emphasis on the Pacific Rim.
Goals:
To have the best undergraduate programs offered in the Northwest, expand access for both traditional and non-traditional students, and be recognized by our stakeholders as having a rigorous and high quality learning environment that produces graduates with outstanding intellectual abilities and valuable skills.
To have selected high quality graduate programs designed to satisfy market needs.
To produce scholarly work that is useful in the application and creation of knowledge, enhances the educational experience of our students, is valuable to business and government, and adds to the reputation of the College of Business and Economics.
To strengthen our ties with business and government for the purposes of being responsive to their needs, securing placement and internship opportunities for our graduates, and gaining support for our core activities.
The curricula leading to degrees in business administration and accounting at both the undergraduate and graduate levels are accredited nationally by AACSB-The International Association for Management Education. Consistent with the mission and goals above, each business major below embraces a core of instruction that includes a common body of knowledge and advanced study.

Areas of Study
The college departments—the school of accounting, information systems, and business law; economics; finance, insurance and real estate; international business; marketing; and management and decision sciences—offer the following options for the Bachelor of Arts in Business Administration degree:

| Accounting | Human Resources/Personnel |
| Business Economics | International Business |
| Business Law | Management |
| Decision Sciences | Management Information Systems |
| Entrepreneurship | Marketing |
| Finance | Real Estate |
| General Business | Risk Management and Insurance |

Within the college a specialized Bachelor of Arts degree is offered in the area of Hotel and Restaurant Administration.

The Department of Economics offers a Bachelor of Arts in Economics, with specializations in such areas as:

| Economics of Financial Markets | International Economic |
| Economics of Public Policy | Development |
| Economics of Regulation | Labor Economics |
| Industrial Organization, and Law |

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

Minors
Minors are available in the following business administration fields: business administration, business law, decision sciences, finance, human resource/personnel, international business, management, management information systems, marketing, real estate, and risk management and insurance. Minors in economics and hotel and restaurant administration are also available. For specific information regarding minor requirements, see the Business Administration, Economics, and Hotel and Restaurant Administration sections of this catalog.

Admission
All students interested in pursuing the Bachelor of Arts degree in business or hotel and restaurant administration should certify as PreBA/PreHA majors upon completion of 24 semester hours, 6 of which must be in business or economics core courses, and have a 2.0 cumulative/major g.p.a. Students should certify into hotel and restaurant or a particular business major upon completion of 60 hours of credit and specific course and g.p.a. requirements (see the certification requirements in the Business Administration section of this catalog). To be eligible to enroll in 300-400-level business or hotel courses, business and hotel and restaurant students must have certified in their respective majors upon completion of 60 hours of course work. Students interested in pursuing the Bachelor of Arts in Economics may apply for certification upon completion of 30 semester hours, 6 of which must be in economics core courses.

For exact information regarding the acceptability of college courses taken at other institutions in areas of study offered by the departments of the College of Business and Economics, prospective students should communicate with the appropriate department chair or the college advising office.

Diversity, Recruitment, and Retention
The College of Business and Economics is strongly committed to diversifying its student body as well as to improving its retention and graduation rates of underrepresented students. We in the college believe it is essential to create an environment that is supportive and inclusive and where all students can succeed academically and professionally.
To support these goals, the College of Business and Economics has established the CBE Recruitment and Retention Program. This program is committed to providing information and support for women, ethnic minority and physically challenged students. The program has four components: (1) Networking; (2) Program and Organizational Development; (3) Internship Opportunities; and (4) Instructional Development.

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

**Degrees: Pullman Campus**

| Bachelor of Arts | Business Administration |
| Master of Accounting | Accounting and Business Law |
| Master of Arts | Business Administration |
| Master of Business Administration | Business Administration |
| Doctor of Philosophy | Economics |

**Degrees: Tri-Cities Campus**

| Bachelor of Arts | Business Administration |
| Master of Business Administration | Business Administration |

**Degrees: Vancouver Campus**

| Bachelor of Arts | Business Administration |
| Master of Business Administration | Business Administration |

**COLLEGE OF EDUCATION**

Walter H. Gmelch, Interim Dean

The College of Education consists of the Departments of Educational Leadership and Counseling Psychology, Kinesiology and Leisure Studies, and 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 in a variety of educational fields; administrators for schools, colleges, and universities; and sport and recreation specialists for private and community agencies. The college also provides professional training in kinesiology, recreation, 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
Graduate programs in the College of Education offer advanced course work and field experience in education and human services including specialists in exercise, human movement, and leisure services. Certification programs in administration and counseling are available at the graduate level. Doctoral programs focus on preparation of administrative personnel for the schools, counselors, teacher educators, and educational researchers. Graduate programs stress scholarship as a basis for all professional endeavors.

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

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

Degrees

The undergraduate degrees offered in the College of Education are as follows:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Department or Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Arts in Education</td>
<td>Teaching and Learning</td>
</tr>
<tr>
<td>Bachelor of Arts in Recreation Administration and Leisure Studies</td>
<td>Kinesiology and Leisure Studies</td>
</tr>
<tr>
<td>Bachelor of Science in Kinesiology</td>
<td>Kinesiology and Leisure Studies</td>
</tr>
</tbody>
</table>

The graduate degrees offered by the College of Education are:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Areas of Specialization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Education</td>
<td>Administration, Counseling, Curriculum, Educational Psychology, Elementary Education, Literacy</td>
</tr>
<tr>
<td>Master of Arts in Recreation and Leisure Studies</td>
<td>Recreation Administration and Leisure Studies</td>
</tr>
<tr>
<td>Master of Arts in Education</td>
<td>Administration, Counseling, Curriculum, Educational Psychology, Elementary Education, Literacy</td>
</tr>
<tr>
<td>Master in Teaching</td>
<td>Elementary Education</td>
</tr>
<tr>
<td>Master of Science in Kinesiology</td>
<td>Exercise Science, Movement Studies</td>
</tr>
<tr>
<td>Doctor of Education</td>
<td>Educational Administration, Curriculum, Educational Psychology, Elementary Education, Literacy</td>
</tr>
<tr>
<td>Doctor of Philosophy (Education)</td>
<td>Administration, Counseling Psychology, Educational Psychology, Teaching and Learning</td>
</tr>
</tbody>
</table>

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

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

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

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

Students majoring in degrees offered by the College of Engineering and Architecture are guided in selection of courses in arts and humanities, social sciences, intercultural studies, and communication to develop a coherent plan for integrating 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. Transfers into engineering programs should include a transferable course in economics as part of their general education course work. Engineering majors require additional advanced social science or arts and humanities course work beyond the community college level.

Degrees

Degrees offered in the College of Engineering and Architecture are listed below:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Department or Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Architecture</td>
<td>Architecture</td>
</tr>
<tr>
<td>Bachelor of Science</td>
<td>Architectural Studies, Biological Systems Engineering, Chemical Engineering, Civil Engineering</td>
</tr>
</tbody>
</table>
Computer Engineering (approval expected fall 1998)
Computer Science
Construction Management
Electrical Engineering
Manufacturing Engineering, Vancouver (approval expected fall 1998)
Materials Science and Engineering
Mechanical Engineering
Master of Engineering Management (Spokane, Tri-Cities, Vancouver)
Master of Science
Civil Engineering
Computer Science
Electrical Engineering
Engineering Science
Environmental Engineering
Materials Science and Engineering
Mechanical Engineering
Doctor of Philosophy
Chemical Engineering
Civil Engineering
Computer Science
Electrical Engineering
Engineering Science
Materials Science (Interdisciplinary Program)
Mechanical Engineering

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 Accreditation Board for Engineering and Technology (ABET). Accreditation for the pending manufacturing engineering and computer engineering degrees will be sought with their first graduating classes.

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

Strong supporting courses are available from the Departments of Mathematics, Physics, Chemistry, and the Program in Biology. The graduate programs are also supported by many excellent university facilities such as the Water Research Center, Albrook Hydraulics Laboratory, Laboratory for Atmospheric Research, Wood Materials and Engineering Laboratory, Information Technology, Spectrographic Laboratory, the Electron Microscopy Center, Erosion Research and Outdoor Irrigation Laboratories, Food Engineering Pilot Plant, the National Science Foundation Center for Design of Analog/Digital Integrated Circuits, and the Materials Research Center.

Computer Science

Computer science has its principal bases in the engineering sciences and mathematics. Computer science encompasses the theory and techniques by which information is encoded, stored, communicated, transformed, and analyzed. It deals particularly with the theory of algorithms, the step-by-step procedures for solving a problem or accomplishing some goal. Students study computer software and hardware systems for efficient solution of practical problems. The undergraduate program in computer science, offered through the School of Electrical Engineering and Computer Science, is accredited by the Computing Sciences Accreditation Board (CSAB). Curricular specializations available include artificial intelligence, communications, computer engineering, computer graphics, mathematics, management information systems, robotics and control, scientific computation, and software engineering. Students use WSU’s central computers and a variety of scientific workstations, graphic workstations, and microcomputer laboratories, all of which are networked to each other and to national networks.

Architecture and Construction Management

The School of Architecture 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 studies in the school as outlined in the different curricula lead to the following degrees: Bachelor of Science in Architectural Studies (a four-year degree program); Bachelor of Science in Construction Management (a five-year professional degree program) accredited by the American Council for Construction Education (ACCE); Bachelor of Architecture (a five-year professional degree program) accredited by the National Architectural Accreditation Board (NAAB); and Master of Science in Architecture with emphasis on energy and resource 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 placed into the advising program within the Student Advising and Learning Center (SALC) where they are assigned advisors in their indicated major interest for the period prior to their being certified in a major. Students may certify into a major after they have completed at least 24 semester credit hours and a prerequisite set of courses for the specific major.

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

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

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

THE GRADUATE SCHOOL

Karen P. DePauw, Interim Dean

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

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

In a graduate program, a student is required to complete appropriate advanced courses, to participate in seminars, and to make an original contribution to knowledge. At least one academic year of graduate study, or the equivalent, is necessary for the completion of a program leading to a master’s degree. A doctor’s degree is awarded in recognition of distinctive scholarship.
The period of study for the Doctor of Philosophy degree is at least three years (six semesters) beyond the baccalaureate degree. For students without a master's degree, at least two of these three years shall be in residence at Washington State University (enrolled full time and present on a campus where a given program has received approval to grant residency). For students with a master's degree, at least one of these three years shall be in residence at Washington State University (enrolled full time and present on a campus where a given program has received approval to grant residency).

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

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

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

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

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

Degrees Granted

Doctor of Philosophy

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

Doctor of Arts

The program of study leading to the degree Doctor of Arts is offered in individual interdisciplinary studies and in mathematics.

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.)

Other 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 Master of Accounting, Master of Business Administration, Master of Engineering Management, Master of Fine Arts, Master of Health Policy and Administration, Master of Nursing, Master of Public Affairs, Master of Regional Planning or Master in Teaching.

A program of study leading to the degree of Master of Arts in Teaching (MAT) is offered in theatre arts and drama.

Admission

Graduates of Washington State University and other colleges and universities whose degrees are recognized by this institution and who meet the requirements for admission to the Graduate School 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 obtain application forms from the Office of the Graduate School. For admission to the Graduate School, Washington State University requires official transcripts from each of the following: (1) colleges or universities from which any degrees have been granted or are expected and those transcripts which show the last 60 graded semester or 90 graded quarter hours of undergraduate work taken; (2) colleges or universities showing graded graduate-level (including doctoral) course work taken after the bachelor’s degree. Note: Students intending to request transfer credit for their Program of Study will need to submit official transcripts from colleges or universities showing such credit. Departments and programs are free to request additional transcripts as deemed appropriate. Official transcripts are those mailed directly to the Graduate School from the registrar of the institution attended. One set is to be sent to the Graduate School and a second set is to be sent to the chair of the department or program concerned. Complete credentials should be on file at least one month before registration. Transcripts from other institutions cannot be returned. Records of previous work at Washington State University need not be submitted.

In general, admission to the Graduate School on regular student status requires at least a B (3.00 on a 4.00 scale) average for the last 60 semester hours of graded undergraduate work. Admission is to be based on the history 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. Foreign 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. For further details the Graduate Study Bulletin should be consulted.

Transfer of Graduate Credits

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

Summer Sessions

Credit earned during summer sessions of Washington State University may be applied in the same manner and subject to the same rules and regulations as credit earned during fall and spring semesters.

In a number of departments there are unusually good opportunities for research during the summer months. Summer work in the College of Education is planned especially to meet the needs of teachers and administrators.
Graduate Work Through Continuing Education

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

No extension credits from other institutions, or work done by correspondence with this or any other institution, or credit earned by special examination may be used to meet advanced degree requirements.

Graduate Study by Seniors

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

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

Registration

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

Students on graduate leave status may discontinue enrollment for credit for a period of 12 months without penalty. After that time, graduate leave status students will be assessed a fee of $25. Students on graduate leave status will be considered by the Graduate School to be in good standing for up to four consecutive years. Graduate leave status enrollees who wish to enroll for credit must give the Graduate School one month notice prior to the enrollment date. Graduate students who fail to maintain continuous enrollment will be dropped from the university.

Special Projects or Independent Study (600), Master’s Research, Thesis, and/or Examination (700), Master’s Special Problems, Directed Study, and/or Examination (702), and Doctoral Research, Dissertation, and/or Examination (800) shall have as prerequisite regular or provisional student status in the Graduate School.

Registration Policy for Graduate Students Completing Degree Requirements

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

Scholarship Standards

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

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

Requirements for a Graduate Degree

The graduation requirements of the Graduate School 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 are those which must be met for completion of a graduate degree program. Departmental requirements for graduation are those in effect at the time the student files a program.

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, by the department chair, and by the Dean of the Graduate School.

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

Time Limit

The time limit for the use of graduate credits toward a master’s degree is six years from the beginning date of the earliest course applied toward the degree. Each program for a doctor’s degree is considered individually. In all cases, work for the degree must be completed within three years of the date of satisfactory completion of the preliminary examination. 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 Study Bulletin 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 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 by the Board of Regents and who reside in the state of Washington while attending WSU may receive waivers of the resident operating fees and the nonresident portion of the tuition. Forms for assistantship or fellowship applications are included as part of the general application for admission to Graduate School.

As most appointments are made by April 1, it is desirable to have applications completed by March 15.

Washington State University subscribes to the following resolution of the Council of Graduate Schools in the United States regarding scholars, fellows, trainees, and graduate assistants. “Acceptance of an offer of financial support (such as a graduate scholarship, fellowship, traineeship, or assistantship) for the next academic year by a prospective or enrolled graduate student completes an agreement that both student and graduate school expect to honor. In that context, conditions affecting such offers and their acceptance must be defined carefully and understood by all parties.

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

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

COLLEGE OF LIBERAL ARTS

Gail D. Chermak, Interim Dean

As a bearer of the tradition of liberal education, the College of Liberal Arts places much importance upon soundly conceived and well taught courses developed to give a properly balanced presentation of the basic areas of human endeavor. Students are assured a nucleus of courses in humanities, social sciences, biological sciences, and physical sciences, a knowledge of at least one foreign language, and a concentration of subject matter in the major and minor fields. As the interests of students develop, students are encouraged to supplement their programs with elective courses of special cultural values such as those in art, literature, and music.
The College of Liberal Arts offers a number of programs that prepare students for various professions and vocations. Graduate as well as undergraduate work is offered by most departments.

The college has the responsibility to provide course work in the arts, humanities, and social sciences for students who major in the other colleges at WSU. In this respect, an important service function is fulfilled.

A number of curricula are offered to give preprofessional training to students who will then enter professional schools. At the same time these curricula are designed to provide a basic liberal education.

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

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

Admission

The requirements for admission to the College of Liberal Arts are the same as those for Washington State University.

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

Requirements for Graduation

The requirements for graduation include the university requirements for graduation plus additional College of Liberal Arts requirements in the humanities, social sciences, and sciences. See graduation requirements on page 39 and 40 of the catalog.

Departmental units include anthropology, communication, comparative American cultures, English, fine arts, foreign languages and literatures, history, philosophy, political science, psychology, sociology, speech and hearing sciences, music and theatre arts and drama. In addition, several special curricula are offered and are listed alphabetically in this catalog as follows: alcohol studies, American studies, Asia program, Canadian area studies, general studies (classics, humanities, liberal arts, linguistics, religious studies, social science), Latin American studies, Russian area studies, Scandinavian area studies, social studies, social work, and women studies.

The Prewill Advising Center is located in the Department of Political Science. Other prewill curricula are offered through such departments and programs as English, history and philosophy.

Degrees

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

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INTERCOLLEGiate CENTER FOR NURSING EDUCATION

Dorothy M. Detlor, Dean

The Intercollegiate Center for Nursing Education (ICNE) in Spokane is a college of nursing shared in common by three institutions of higher education: Eastern Washington University, Washington State University, and Whitworth College.

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

Undergraduate Program

ICNE’s undergraduate program is approved by the Washington State Nursing Quality Assurance Commission and is accredited by the National League for Nursing. Approximately 300 generic and registered nurse students are enrolled in the baccalaureate nursing program at Spokane, the outreach site in Yakima, the Wenatchee site, and the branch campuses in Tri-Cities and Vancouver.

The program is open to students beginning a nursing career and registered nurses who wish to obtain a baccalaureate degree in nursing. Graduates practice in a variety of settings including hospitals, community health agencies, nursing homes, 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 may be taken at any institution offering courses equivalent to those taught at Washington State University.

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

All students planning to major in nursing must apply to the Office of Admissions at WSU and be admitted to the university. Requirements may be met at WSU or may be transfer credits from another institution of higher education. Applications to the 300-400-level nursing major in Spokane and Yakima are obtained from the Office of Admissions at WSU. Application must be completed by February 15 for fall admission and September 15 for spring admission.

All registered nurses planning to apply to the nursing major at WSU Tri-Cities, (which includes the Wenatchee site), or WSU Vancouver must do so through the Admissions Office at the respective sites. Applications are available until February 15 for fall semester consideration. Students are encouraged to contact an advisor at their respective 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 center must present at least 60 semester hours or 90 quarter hours of acceptable credit from an accredited college or university. The credits must include those courses which are prerequisite to nursing.

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

Graduate Program

Established in 1983 the Master of Nursing program prepares nurses for leadership in acute care nursing, psychiatric/mental health nursing, community health nursing, and family nurse practitioner positions. The program is accredited by the National League for Nursing. Degree requirements (except the family nurse practitioner program) can be completed in three semesters of full-time study. However, four semesters are required for the family nurse practitioner curriculum. Individualized programs can be arranged to facilitate part-time study. Applications must be complete by March 15 for fall admission and by November 15 for spring admission.

Continuing Education Program

The Continuing Education Program provides a variety of offerings for registered nurses throughout the Inland Northwest and southwest Washington. In addition to workshops, conferences, seminars, and courses conducted at more than 11 sites, televised courses are aired over cable and public television systems. Home study courses are also available. The continuing education needs and interests of nurses are assessed through a variety of means.

Degrees

The degrees offered through the Intercollegiate Center for Nursing Education are as follows:

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

COLLEGE OF PHARMACY

Mahmoud M. Abdel-Monem, Dean

Admission

The schedule of studies in pharmacy at Washington State University is divided into two preprofessional or preprofessional years and four professional years.

The two preprofessional years of study may be taken at WSU or any accredited college or university having equivalent courses. Not less than 60 semester credit hours or 90 quarter hours should be completed during the two preprofessional years. All General Education Requirements and prepharmacy science courses listed below must be completed prior to the beginning of all classes in the professional program.

<table>
<thead>
<tr>
<th>WSU Courses</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts and Humanities and Social Sciences Electives</td>
<td>9</td>
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<tr>
<td>BC/BP 364 Introductory</td>
<td>4</td>
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<tr>
<td>Bio S 103, 104 Introductory (with lab)</td>
<td>8</td>
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<tr>
<td>Chem 105, 106 Principles (with lab)</td>
<td>8</td>
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<tr>
<td>Chem 340, 341, 342 Organic (with lab)</td>
<td>8</td>
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<tr>
<td>Engl 101 Introductory Writing</td>
<td>3</td>
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<tr>
<td>GenEd 110, 111 World Civilizations</td>
<td>6</td>
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<tr>
<td>Intercultural Studies Elective</td>
<td>3</td>
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<tr>
<td>Math 140 Math for Life Scientists</td>
<td>4</td>
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<tr>
<td>Micro 301 General (with lab)</td>
<td>4</td>
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<tr>
<td>SpCom 102 Public Speaking</td>
<td>3</td>
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<tr>
<td>Stat 412 Biometry</td>
<td>3</td>
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</table>

First Aid and CPR certification and demonstration of computer literacy.

Students entering WSU as freshmen with an intent to major in pharmacy are advised to indicate this fact when enrolling. Prepharmacy students are advised and counseled by members of the pharmacy faculty.

The application period each year is from December 1 to March 1. Students who wish to make special inquiries about the College of Pharmacy should contact Pharmacy Student Services, WSU, Pullman, WA 99164-6510, (509) 335-1402.

Determination of admission to the College of Pharmacy will be based upon the student’s academic record, communication skills, recommendations, professional goals statement and, if necessary, a personal interview. The race, sex, religion, age, color, creed, national or ethnic origin, marital status and handicap of the applicant is not considered in the admission process. 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 prepharmacy program will be admitted to the college.

Degrees

The College of Pharmacy offers programs of study leading to the degree of Doctor of Pharmacy (PharD) and the Master of Science in Pharmacology and Toxicology and Doctor of Philosophy (Pharmacology and Toxicology).

COLLEGE OF SCIENCES

Leon J. Radziemski, Dean

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 international 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 a senior research project 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 Electron Microscopy Center, Nuclear Magnetic Resonance Center, Shock Physics Laboratory, Geoanalytical Laboratory, Ownbey Herbarium, Conner Zoological Museum, Hudson Biological Reserve, and Meyer’s 29
The College of Sciences offers programs of study leading to the following degrees:

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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<tr>
<td>Bachelor of Science</td>
<td>Biochemistry</td>
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<td>Biology</td>
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<td>Chemistry</td>
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<td>Environmental Science</td>
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<td>General Studies</td>
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<td>biological sciences</td>
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<td>Master of Arts</td>
<td>mathematics</td>
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<td>physical sciences</td>
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<td>Master of Science</td>
<td>Geology</td>
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<td>Mathematics</td>
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<td>Zoology</td>
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<td>Master of Regional Planning</td>
<td>Regional Planning</td>
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<td>Doctor of Arts</td>
<td>Mathematics</td>
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<td>Doctor of Philosophy</td>
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<td>Microbiology</td>
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<td>Physics</td>
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<td>Plant Physiology</td>
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<td>Doctor of Philosophy Materials Science</td>
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Some of the graduate degree programs are jointly supported by the Colleges of Agriculture and Home Economics, Engineering and Architecture, and Veterinary Medicine, thus providing a broad base for graduate training.

COLLEGE OF VETERINARY MEDICINE

Borje K. Gustafsson, Dean

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

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

Admission

A minimum of six years is required to obtain the degree of Doctor of Veterinary Medicine. The first two years of preprofessional training can be taken at any institution having courses equivalent to those taught at Washington State University, and the last four years are professional study directed by the College of Veterinary Medicine.

Applicants for admission to the College of Veterinary Medicine must present at least 60 semester hours of acceptable credits from an accredited college or university exclusive of military training and physical education. The 60 semester hours should include: 3 or 6 hours of social science and 3 or 6 hours of arts and humanities, to total 9 hours; 6 hours communication proficiency; 3 hours intercultural studies; 6 hours world civilizations; 3 hours mathematics proficiency (General Education Requirements for Graduation); 33 hours including zoology or general biology, inorganic and organic chemistry, biochemistry, physics, mathematics, genetics; and electives. All courses except biochemistry can be taken at a community college.

Information regarding the acceptability of course credits should be obtained from the Director of Admissions.

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, but are encouraged to major in animal science, biology, chemistry, microbiology, wildlife, or zoology.

A major in veterinary medicine is not declared until admission to the College of Veterinary Medicine has been granted.

A student seeking to enter the four-year program must fill out a VMCAS (veterinary medical college application service) application. VMCAS applications can be obtained from the Office of Student Services, College of Veterinary Medicine, Pullman, WA 99164-7012 and must be completed and returned to the VMCAS office by October 1 of the year preceding the fall semester in which the applicant wishes to enroll. Records of all applicants will be forwarded by VMCAS to the Washington Oregon Idaho (WOI) Admissions committee. The committee, with the approval of the Board of Regents, selects those students to be admitted to the first year of the professional program. Applicants will be notified of their acceptance or denial on or before March 15. Successful applicants who are not currently enrolled at WSU will be asked to fill out a uniform undergraduate application for admission to WSU. 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:

1. To qualified students coming from homes in the states of Washington, Idaho, and Oregon.
2. To qualified students certified and financed by the Western Interstate Commission for Higher Education (WICHE) Compact states.
3. To all other qualified students.

**Western Regional Higher Education Compact**

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

Students must apply to their home state for certification in addition to making application to the College of Veterinary Medicine, Washington State University. Additional information regarding regional veterinary education may be obtained from the following:

- The Executive Director
- Western Interstate Commission for Higher Education
- P.O. Drawer P
- Boulder, CO 80302

**WOI Regional Program in Veterinary Medical Education**

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

**Degrees**

The College of Veterinary Medicine offers courses of study leading to the degrees of Doctor of Veterinary Medicine, Bachelor of Science in Veterinary Science, Bachelor of Science in Neuroscience, Master of Science in Veterinary Science, Master of Science in Neuroscience, and Doctor of Philosophy (Neuroscience and Veterinary Science).
Branch Campuses
WASHING TO  N  STATE UNIVERSITY AT SPOKANE

William H. Gray, Campus Executive Officer and Dean

Washington State University at Spokane is a full-service urban campus and a
primary provider of graduate and research programs for Spokane. Now oc-
cupying five floors of its downtown headquarters, the university continues to ex-
and research, public service, and academic opportunities to other locations
throughout the Inland Northwest. Partnerships with the Spokane medical com-
community have resulted in research and teaching opportunities with Eastern State
Hospital, Deaconess Medical Center, Sacred Heart Medical Center, Veterans
Hospital, Kootenai County Medical Center, and Shriners Hospital. WSU com-
puter science and engineering courses are now housed at Spokane Intercolle-
giate Research and Technology Institute (SIRTI), located at the Riverpoint cam-
pus. The Cooperative Academic Library Services (CALS) is located in the
downtown Peyton Building. It serves WSU students in Spokane and Eastern
Washington University (EWU) students enrolled in Spokane classes.

The WSU Speech and Hearing Sciences Department and EWU's Communica-
Disorders Department jointly offer diagnostic and rehabilitative services for
individuals at all ages with a variety of speech, language, and hearing problems,
including problems resulting from brain injury or neuromuscular disability. Fit-
ting of hearing aids, assistive and personal listening devices, auditory training, and
lip-reading instruction also are provided. The clinic provides a training center for
graduate students from both programs, as well as a service to the community. It
is located on the sixth floor of WSU Spokane's downtown headquarters.

WSU Spokane's first specially designed facility at Spokane's Riverpoint
Higher Education Park is the Phase I Classroom Building. It houses the In-
terdisciplinary Design Institute, a unique collaboration among the design
disciplines at WSU. Students and faculty from architecture, construction man-
agement, interior design, and landscape architecture work and learn together
in a team-oriented, urban environment. Design programs offered in Spokane
include the fourth and fifth years of the respective degree programs. Courses
for graduate programs in architecture, interior design, and landscape archi-
tecture will be available from fall 1998. A Doctor of Design is planned for
the end of the decade.

Spokane offers a unique educational environment and access to clinical
populations for WSU graduate students and researchers. WSU Spokane's re-
search roles are further achieved through the following facilities.

Health Research and Education Center (HREC) fosters the development of
clinical and applied research in biomedical and social health arenas. The cen-
ter contributes to the improvement of human health and facilitates economic de-
velopment of the region by fostering innovation, technology transfer, and ap-
plied research. It serves as a link between researchers from the university, the
Spokane health care community, and funding sources. HREC activities encom-
pass the basic health sciences as well as diverse specialized areas including:
patient outcome research, clinical pharmacology, neurosciences and mental
health, cardiology, oncology, organ transplantation and immunology, diabetes,
and radiation biology and health physics. A special feature of the HREC is a
biomedical research laboratory system in conjunction with major health care
institutions in Spokane.

The Washington Institute for Mental Illness Research and Training
(WIMIR) was established to facilitate collaboration between state gov-
ernment and state colleges and universities with the goal of conducting
research, training, and clinical program development of direct benefit to
mentally ill persons in Washington state. The eastern branch of the insti-
tute is co-located at Washington State University and Eastern State
Hospital. Research activities are intended to improve the care and treat-
ment of mentally ill individuals by determining the effectiveness of new
research roles are further achieved through the following facilities.

The Washington Institute for Community-Oriented Policing (WSICOP),
 housed at WSU Spokane, is a partnership between WSU, the Washington As-
 sociations of Sheriffs and Police Chiefs (WASPC), and the Washington Crim-
 inal Justice Training Commission. WSICOP helps further the mission of com-
 nity policing by providing training to police officials and community
 members, by giving technical assistance to law enforcement agencies, and by
conducting research on the implementation and effects of community-oriented
 policing. In addition, WSICOP provides a centralized forum for information
 sharing and problem solving among community-oriented policing agencies
 and for dissemination of research findings at state and federal levels.

Two further examples of WSU Spokane's wide array of programs are:

Area Health Education Center (AHEC), jointly sponsored by WSU and UW,
provides education and training programs for rural health professionals.
Located at WSU Spokane, AHEC works with community health care providers
and the university to address such issues as recruitment and retention of phy-
sicians, nurses, and other health care professionals in rural and underserved
areas. WSU is further committed to assisting rural communities in maintain-
ing high-quality health care through applied research, consultation, and the
development of a clearinghouse under the auspices of the Office of Rural
Health.

Small Business Development Center (SBDC) employs business develop-
ment specialists from both WSU and the Community Colleges of Spokane,
a combination that provides business clients with access to a broad range of
resources, including long-term management and technical assistance and
workshops covering vital areas of business operation. Offices are located at
SIRTI.

Priorities at WSU Spokane include serving placebound students as well as
full-time, traditional students; enhancing the economic development of the re-
 gion; and utilizing the urban environment to provide internships and conduct
research within the community. To meet these goals, courses are scheduled
at convenient times for both part-time working adults and full-time students.
In addition to classes taught by resident faculty, many courses delivered to
WSU Spokane via the Washington Higher Education Telecommunications
System (WHETS) are taught by experts on other WSU campuses.

Graduate programs and courses currently are available in these areas:
computer science, criminal justice, electrical engineering, engineering
management, health policy and administration, human nutrition, materials
science and engineering, mechanical engineering, and speech and hearing
sciences (communication disorders). Course work and internships for stu-
dent teachers and for experienced educators seeking the superintendent's
credential and principal's certification through the College of Education also
are offered at WSU Spokane. The Spokane campus is the site of the final
stages of undergraduate professional education for all students enrolled in
pharmacy, and for many students enrolled in architecture, construction
management, interior design, and landscape architecture. The Doctor of
Pharmacy at WSU Spokane is the only doctoral degree offered at a branch
campus in the state. Course work also is available in a variety of other
disciplines, including certificate programs in health care management and
policy, real estate, and insurance.

For details, contact:
Enrollment Services, WSU Spokane
601 West First Avenue
Spokane, Washington 99201-3899
(509) 358-7500
stuh@wsu.edu
WASHINGTON STATE UNIVERSITY AT TRI-CITIES
James Cochran, Campus Executive Officer and Dean

WSU Tri-Cities in Richland delivers upper-division undergraduate and graduate education to the citizens of the Columbia Basin region and the neighboring counties. Students may earn advanced degrees in biology, business administration, chemistry, chemical engineering, civil engineering, computer science, education, electrical engineering, engineering management, environmental engineering, environmental science, materials science and engineering, and mechanical engineering. Undergraduate degrees may be earned in agriculture, business, computer science, education, electrical engineering, environmental science, general studies (humanities, physical sciences, and social sciences), mechanical engineering, and nursing.

The majority of courses leading to a bachelor’s degree in chemical engineering can be taken, as well as courses in mathematics, statistics, counseling psychology, and educational administration and supervision, among others. Certification programs in education are also offered, as well as a Master in Teaching program. Anticipated additions include graduate programs in communication, management of technology and public affairs, as well as a baccalaureate program in biology.

Research provided through WSU Tri-Cities responds to the unique needs of the region. Major efforts include the Earth and Environmental Sciences Laboratory, exploring subsurface saturation and flow; the Electronic Materials Laboratory, investigating solar cell production; and eddy current research, applying numerical modeling for non-destructive testing applications. The administrative offices for the United States Transuranium and Uranium Registries are also housed on this campus. In addition, WSU Tri-Cities provides cooperative research and internship opportunities with Department of Energy and Hanford contractors who afford exceptional opportunities for research, providing expertise, facilities and equipment not available at most universities.

The Food and Environmental Quality Laboratory has been established as part of WSU’s College of Agriculture, the USDA, the Tri-State (Washington, Oregon, Idaho) Pesticide Research Program and the federal IR-4 Program. It assists farmers, orchardists, and other pesticide users with residue analysis and risk/benefit assessment and is active in sustainable agriculture programs.

Public services also reflect the requirements of the citizens in the Columbia Basin region. WSU Radio and Television Services programming and development for KFAE-FM and KTNW-TV are facilitated through offices and studios on the Tri-Cities campus. The University Center for Professional Education serves thousands of citizens each year with non-credit courses and seminars. Cooperative Extension regional offices and faculty expertise are also housed on this campus. In addition, WSU Tri-Cities provides opportunities with Department of Energy and Hanford contractors who afford exceptional opportunities for research, providing expertise, facilities and equipment not available at most universities.

Research provided through WSU Tri-Cities responds to the unique needs of the region. Major efforts include the Earth and Environmental Sciences Laboratory, exploring subsurface saturation and flow; the Electronic Materials Laboratory, investigating solar cell production; and eddy current research, applying numerical modeling for non-destructive testing applications. The administrative offices for the United States Transuranium and Uranium Registries are also housed on this campus. In addition, WSU Tri-Cities provides cooperative research and internship opportunities with Department of Energy and Hanford contractors who afford exceptional opportunities for research, providing expertise, facilities and equipment not available at most universities.

The Consoliated Information Center, WSU Tri-Cities newest building on campus, merges the WSU Tri-Cities library with the Hanford Technical Library and provides access to the entire WSU library system. It also houses the Department of Energy Reading Room, WSU Tri-Cities Business LINKS, the University Center for Professional Education and Classroom exhibit space.

For details, contact:
Admissions and Registration, WSU Tri-Cities
2710 University Drive
Richland, WA 99352-1671
(509) 372-7250
http://www.tricity.wsu.edu

WASHINGTON STATE UNIVERSITY AT VANCOUVER
Harold Dengerink, Campus Executive Officer and Dean

Like all of the state’s branch campuses, Washington State University at Vancouver offers junior, senior and graduate-level courses. WSU Vancouver was established specifically to serve the residents of the six-county region of Southwest Washington, and, by its ten-year anniversary in 1999, will have nearly 2,000 alumni.

The Programs—More than 1,300 students attend WSU Vancouver, located on 348 acres seven miles north of the Portland-Vancouver metropolitan area. Bachelor’s degrees include: biology, business, English, environmental science, human development, humanities, manufacturing engineering (approval expected by fall 1998), nursing, psychology, and social science. Within those degree programs, more than 20 faculty members foster a focus on everything from anthropology to women’s studies. Master’s degrees include: business administration (MBA), education (Ed.M.), engineering management (MEM), public affairs (MPA), nursing (MSN), and teaching (MIT).

Academic programming is geared to serving the unique needs of the region. For instance, the B.S. in Manufacturing Engineering is the first degree of its kind in the state, developed in response to demonstrated community need for educated engineers to accommodate the region’s growing high-tech industry. Future academic programs include bachelor’s degrees in computer science, electronic communications, and public affairs.

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

The CAT Program: Efforts with Clark College in Vancouver and Lower Columbia College in Longview have led to the establishment of the Cooperative Agreement for Transfer (CAT). Students enrolled in the CAT program during their first year at a community college, with the intention to complete their education at WSU Vancouver. This approach to seamless education provides students with a long-term blueprint of their college career and allows them to receive priority registration and university-level academic advising.

Partnerships for Elementary Science Education: Grants from the National Science Foundation and support from local industry support a cooperative partnership to support science education in the region’s elementary schools. WSU faculty members act as science resources for classroom teachers as they work to strengthen their understanding of science principles and processes. Funded through the year 2000, the partnership involves WSU Vancouver, six local school districts, Hewlett-Packard and the Educational Service District 112.

The Center for Columbia River History: The center is a cooperative effort between WSU Vancouver, Portland State University and the Washington State Historical Society. The center’s efforts focus on research and public education on the history of the Columbia River.

The Environmental Information Center (EIC): One of the region’s largest collections of environmental information, the EIC is located in the WSU Vancouver Library to increase the availability of its resources. The EIC is a community clearinghouse for information on such topics as water resource management, natural resource protection, waste reduction and recycling, and energy, air, land conservation. The EIC is a cooperative effort between the City of Vancouver, Clark County, Clark Public Utilities, the Southwest Air Pollution Control Authority and the WSU Cooperative Extension.

Other community partnerships through WSU Vancouver include psychology practicum projects through various mental health and social service agencies and a speakers bureau of university experts who share their expertise with regional groups through speaking engagements.

Faculty and Research—WSU Vancouver's faculty expertise covers a variety of subjects, including global climate change, domestic violence, eating disorders, criminal justice, child psychology, education, public affairs, genetics and many others. Great teaching and an emphasis on individual attention also characterize WSU Vancouver faculty, with a total student to faculty ratio of approximately 14 to one.

The Campus—The campus features four academic buildings, as well as a gallery, a food court, and walking/biking paths. Facilities also include engineering, nursing, computer and psychology laboratories, as well as library, and fitness facilities.

For more information about activities and programs contact:
The Office of Admissions, WSU Vancouver
14204 NE Salmon Creek Avenue
Vancouver, WA 98686
(360) 546-WSUV

For more information about activities and programs contact:
Summary of Academic Policies

Registration
Instructions for registration and policies and procedures for dropping and adding classes are included in the Time Schedule, available in the Registrar’s Office and the Student Book Corporation. See Appendix, Rules 47-61.

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 20 or more hours (10 hours for summer session) without written overload approval from their major department chair or Student Advising and Learning Center advisor. (See Tuition and Fees for additional credit it hour charge over 18 hours.)

Cougar Cards
Cougar cards (student photo ID cards) are required for library privileges, admission to events and activities, obtaining and cashing checks, and general university use. New students will have their photos taken during orientation. The cougar card and the athletic sports pass are required for all WSU athletic events. The cougar card with validated food service privileges will be required for service in all university dining halls.

Credit
Washington State University operates on the semester calendar. Each semester is of 15-weeks duration 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 contact hour per week for each credit hour (two hours outside preparation implied); (2) studio—two contact hours per week for each credit hour (one hour of outside preparation implied); (3) laboratory—three contact hours per week for each credit hour; (4) independent study—three hours of work per week for each credit hour; (5) ensemble—four contact hours per week for each credit hour. The proportion of time in each course assigned to lecture, studio, laboratory, independent study, 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 per graduate student. (Six hours in 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 page 19 of this catalog.

Financial Aid: For financial aid purposes, full-time enrollment for an undergraduate student is 12 hours and half-time enrollment is considered to be 6-11 hours. For graduate students, full-time enrollment is 10 hours and half-time enrollment is considered to be 5-9 hours. Certain financial aid programs or policies such as State Need Grant and Tuition and Fee Waivers require a student to be enrolled full-time.

Loan Deferments: Enrollment certifications for deferments on Perkins Loans (National Direct Student Loans) and Federal Family Education Loans with no break in enrollment, require at least half-time enrollment (6 semester hours) for undergraduate and graduate students. Five semester hours constitutes half-time enrollment for a graduate student on a half-time assistantship.

Federal Family Education Loans deferments, with a break in enrollment, require full-time enrollment (12 semester hours for undergraduates; 10 for graduate students). Ten semester hours constitute full-time for a graduate student on half-time assistantship, for this purpose.

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

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

Foreign Students Holding F-1 Visas: The Immigration and Naturalization Service requires that nonimmigrant F-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 the Office of International Education.

Auditing
No university credit will be allowed for auditing courses. To visit a class more than three times requires an audit card which must be obtained from the Registrar’s Office. The written permission of the advisor and the instructor is required. Ordinarily audit cards will be issued only for lecture courses or the lecture portion of laboratory courses. 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 Office of Student Affairs. Dropping all courses constitutes withdrawal from the university. See Appendix, Rule 70.

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

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

Graduate degree students are those admitted to a graduate program in a degree classification on the basis of a specific application to the Graduate School. See Appendix, Rule 25.
Numbering System of Courses

Lower-division
Courses numbered 100-199 inclusive are normally taken by freshmen.
Courses numbered 200-299 inclusive are normally taken by sophomores.

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

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

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

Computer Literacy
Washington State University offers a wide variety of courses, small group tutorials, instructional mini-seminars, and help sessions for students who feel they need assistance in acquiring computer skills. Students are encouraged to bring to campus skills in word processing, use of spreadsheets and databases, some ability to search the world wide web, and a preliminary understanding of information retrieval library systems.

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 general as: one semester of chemistry or concurrent enrollment. (See Bio S 103.) Concurrent enrollment is indicated by the symbol cr/. Prereqs may include a level of expertise or a specified major, e.g., students may not enroll in Spanish 324 without first being fluent in Spanish, or students may not enroll in an advanced seminar before achieving senior standing in the major.

Recommended prerequisites are listed, as well, preceded by the abbreviation: rec.

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

Field Trip Guidelines

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

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

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

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

Certification of a Major

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

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

Students who satisfy the minimum university requirements plus any departmental core requirements with a 2.0 cumulative g.p.a. are qualified for certification except in those departments which are impacted or must meet special certification standards. Consult the departmental section of this catalog for specific departmental requirements.

SPECIAL NOTE ON UNDERGRADUATE CERTIFICATION: Since academic departments may establish additional requirements for those seeking admission to specific programs, students are reminded that admission to Washington State University does not ensure acceptance into any department or program as a certified major and degree candidate. Several academic programs including architecture, business, communication, computer science, construction management, economics, education, engineering, environmental science, fine arts, hotel and restaurant administration, interior design, landscape architecture, mathematics, music, nursing, pharmacy, psychology, and veterinary medicine are unable to accept all qualified students. In these situations, other 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 g.p.a. higher than the minimum 2.0. Academic units may also require completion of one or more specific courses prior to certification. Units must include in their certification requirements a mechanism whereby qualified transfer students can be certified upon admission. These requirements for immediate certification may include standards more rigorous than the minimum requirements, but prior enrollment per se at WSU cannot be a condition for certification of transfer students. See Appendix, Rule 53, 55, 56.

Minor, Second Major, or Second Baccalaureate Degree

A student who has completed 60 semester hours 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, half of which must be in upper-division course work. 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 list of approved minors is published in the Time Schedule.

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 require-
Grading System

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

A– grade points per credit hour.
B–3 grade points per credit hour.
C–2 grade points per credit hour.
D–1 grade point per credit hour.
F–no credit; 0 grade points. (Credits attempted are calculated in g.p.a.) Fail.
S (Satisfactory)–no grade points. (Credit not calculated in g.p.a.) Grade given upon satisfactory completion of courses numbered 499, 600, 700, 702, 800, Special Examinations (Rule 15), and other courses duly authorized for S, F grading by the Faculty Senate. (Courses approved for S, F grading are footnoted in the Time Schedule.) A, S, or F grades only are used for physical education activity courses. Courses approved for S, F grading may also be graded S at midsemester indicating satisfactory progress.
P (Passing)–no grade points. (Credit not calculated in g.p.a.) A satisfactory grade for a course taken under the pass, failing grade option. (See below.) Instructors will turn in regular letter grades for all students enrolled in courses under the pass, fail option, but grades will appear on the student’s permanent record as P (Passing) or F (Failing).
I (Incomplete)–no credit or grade points. The term is used to indicate that a grade has been deferred. It is for students who for reasons beyond their control are unable to complete their work on time. Undergraduates or graduates who receive an I grade in an undergraduate course (100-499) have up to the end of the ensuing year to complete the course, unless a shorter interval is specified by the instructor. If the incomplete is not made up during the specified time or if the student repeats the course, the I is changed to an F. (See Rule 34.) Faculty are required to submit an instructor’s Incomplete Grade Report (IGR) to the departmental office for every I given. The IGR must specify conditions and requirements for completing the incomplete, as well as any time limitations less than one year.
W (Withdrawal Passing)–no credit or grade points. Used if the student has filed, in the Registrar’s Office, official notice of withdrawal from the course prior to the end of the 9th week, withdrew passing in accordance with Rule 69, or withdrew from the university prior to the last day of instruction.
X (Grade Withheld)–no credit or grade points. Denotes continuing progress toward completion of special problems, research, thesis, or doctoral dissertation, i.e., 499, 600, 700, 702, 800; X grades are converted to S upon satisfactory completion. An X grade may also be used when no final grade is reported due to instructor’s illness or absence from town. See Appendix, Rule 90, 92, 98-103.

Grade Point Average

The student’s grade point average (g.p.a.) 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 g.p.a. Credits attempted for F grades are calculated into the g.p.a. Transfer and other nonresident credit is not computed in the Washington State University grade point average. The following example illustrates computation of the g.p.a.:

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

Credit hours attempted (9) divided into total grade points earned (27) = g.p.a.
(3.00) Total hours earned: 15

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

Coursed taken by correspondence yield grade points toward graduation. Grades earned in courses through Extended University Services sponsored by Washington State University yield grade points toward graduation. Correspondence or extension work submitted for transfer credit yields credit only if completed with a grade of C or better. See Appendix, Rules 99-103.

Grade Reports

Midsemester grades are issued to freshmen students with fewer than 24 semester hours of credit and are mailed to the student’s local address. Final grade reports for all students are mailed to the student’s permanent home mailing address at the end of the fall and spring semesters. Only one grade report is produced per student. Students requesting an additional grade report must order a copy of their official transcripts.

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 $3.70 fee per copy. Phone orders for transcripts cannot be accepted. 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 prerequisite 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.

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 only if there is space available in the course. 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. It is the student’s responsibility to indicate repeat courses at the time of registration. Repeats by correspondence, extension, or in residence at other institutions must be reported orally or in writing to the Registrar’s Office. If a student transfers a course to WSU from another institution and subsequently repeats the course at WSU, only the credit and grade points earned at WSU will be allowed. See Appendix, Rule 34.

Courses Approved for Repeat Credit

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

Pass, Fail Grading Options

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

A student may change a pass, fail enrollment to a regular letter-graded enrollment, or vice versa, during the first three weeks of classes. After the third week and through the last day of instruction in a semester (end of the 15th week), a pass, fail enrollment can be changed to a letter-graded enrollment.

**Undergraduate Pass, Fail Option**: A total of six courses may be taken on a pass, fail basis by students initiating and completing work for a baccalaureate degree at Washington State University. No courses designated as meeting General Education Requirements for Graduation may be taken pass, fail. No more than two courses may be taken on a pass, fail basis during any given semester. One course 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.

Allowances for transfer students are as follows:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-44</td>
<td>six courses</td>
</tr>
<tr>
<td>45-59</td>
<td>five courses</td>
</tr>
<tr>
<td>60-74</td>
<td>four courses</td>
</tr>
<tr>
<td>75-89</td>
<td>three courses</td>
</tr>
<tr>
<td>90 and above</td>
<td>two courses</td>
</tr>
</tbody>
</table>

University Honors Program courses may be taken on a pass, fail basis only with the permission of the Honors Program Coordinator.

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

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

**Honors**

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

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

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

Graduation Honors. Candidates for baccalaureate degrees who have completed at least 30 hours of graded work (grades in which grade points are awarded) at Washington State University will graduate summa cum laude if the cumulative grade point average for work completed at Washington State University is 3.90 or better and 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 Program 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 g.p.a. 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 relative to instruction or grading should refer them first to the instructor and, if not resolved, then to the chair of the department in which the course is offered. The chair, if not able to resolve the problem to the student’s satisfaction, will refer the complaint, presumably with the chair’s written impressions, to the dean of the college. The student is encouraged then to go directly to the dean of the college. The Ombudsman, the Vice Provost for Student Affairs, and the Provost are always available for any complaint not resolved to the student’s satisfaction. See Appendix, Rule 104.

**Academic Deficiency**

Undergraduate students are expected to maintain at least a 2.00 cumulative grade point average during their academic careers at WSU. A student who falls below a 2.00 cumulative g.p.a. or who falls below a 2.00 semester g.p.a. for two consecutive semesters is considered academically deficient.

Students in the Advisory Program of the Student Advising and Learning Center who are deficient must apply to the Student Advising and Learning Center for reinstatement. For certified majors the Student Advising and Learning Center grants to the student’s academic department the decision on reinstatement. If denied reinstatement by the academic department, a student may appeal to the Student Advising and Learning Center for continued enrollment in another department.

A student whose cumulative g.p.a. is deficient for two consecutive semesters is normally dropped. A student who feels there are important extenuating circumstances can appeal to the Student Advising and Learning Center. A student whose work is improving (semester g.p.a. of 2.00 or better), even though the cumulative g.p.a. is below 2.00 for two semesters, is usually reinstated.

All students reinstated under any of the above provisions will be on academic probation and must abide by specific probationary conditions or be subject to denial of registration in succeeding semesters.

Decertification

Once certified, a student cannot be decertified by the department unless the student becomes academically deficient under Academic Regulations, Rules 37, 38, or 39. Students decertified under these rules must meet the approved additional criteria for recertification, if any. Some departments and programs may decertify students who fall below the g.p.a. required for certification. See Appendix, Rules 37-43.

**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. View 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; and
5. Obtain a copy of the Washington State University policy regarding student records showing how the university meets 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, telephone numbers, 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 including number of hours enrolled, de-
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 g.p.a. may become a candidate for the bachelor’s degree, depending upon the field of study.

Application for a bachelor’s or DVM 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. 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, has earned a minimum of 150 semester hours of credit, and has met the implied requirements in the paragraphs above may become a candidate for the bachelor’s degree in that field of study.

Correspondence course credit is limited to not more than 25 percent of the total hours required for any undergraduate degree.

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. The student must also earn a C average or better in all major subjects. 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 Senior Petitions Committee 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 graduation requirements of the university and its colleges 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. 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.

Undergraduates who will not graduate within the normal minimum degree time frame (four years for four-year baccalaureate programs, five for a five-year and six for a six-year program) have a total of eight years in four-year programs and ten in five- and six-year programs to complete their degrees under their original catalog 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, with the exception to policy listed below.

Students who initiated their post-secondary education prior to fall 1991 (fall 1993 for transfer students) may, if they wish, fulfill the general university requirements for graduation as published in the 1989-91 catalog.
eral Education curriculum attempts to define and explore the ever-changing body of knowledge which is deemed valuable for all to know. The needs of citizens include the development of higher-level intellectual skills, including formal literacy and critical thinking. The faculty has identified writing proficiency in particular as a priority at WSU. Accordingly, all students will satisfy WSU’s writing proficiency standards for graduation. In addition, the curriculum is designed to emphasize study of the relevant past, with the objective of developing an informed, mature, and critical mind.

Providing a Foundation for the Major: Education for the common life, however, must also include the skills and knowledge useful as a base for careers as well as for citizenship. Communication and reasoning skills have multiple functions; they serve as a base for the major, and they enhance the student’s overall abilities and intellectual maturity. To function well in the workplace, one must be able to see beyond its confines. Consequently, exposure to different values, perspectives, and cultural traditions is a valuable preparation for the kinds of work that college graduates do, and the General Education curriculum can enrich the student’s sense of the context and meaning of his or her career activities.

Methodological Competence and Integration of Knowledge: The organization of the General Education curriculum is an expression of our historical experience of how new knowledge has been acquired in the past and how it is likely to be acquired in the future. Consequently, the curriculum stresses the acquisition of a working knowledge of a broad range of scholarly disciplines. One of the goals of General Education is therefore understanding of the major fields of knowledge and the interrelationships between them. However, since students cannot possibly learn everything they need in the four or five years of their undergraduate experience, the curriculum prepares students for continued, life-long learning. Library skills and a general competence with computers are increasingly important in learning to learn.

These four goals of General Education promote not only awareness of the world, but self-awareness within the students expanding knowledge. They also encourage integration of the students’ anticipated economic roles within the whole of their experience. Toward the attainment of those goals, the faculty has established minimum standards in terms of credit hours, grade points, and distribution requirements within the General Education Program. See Appendix, Rules 106-137.

Requirements for Graduation

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 - Successful performance with the University Writing Portfolio is a requirement for graduation at WSU. Students may satisfy this requirement, which involves submitting three papers from previously assigned class work plus two timed and proctored writing exercises, any time after successfully completing Engl 101 (or equivalent). Students must complete the portfolio no later than the end of the first semester of upper-division standing (upon completion of 60 hours). Transfer students may elect to postpone the portfolio until they have completed at least a semester of work at WSU. For details, consult the Portfolio Office, (509) 335-7959.
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 Program. See Appendix, Rules 106-137.
The General Education Program

WSU’s General Education Program is organized vertically, allowing sequential study in depth from the freshman year to the junior or senior year. Distribution requirements in the Arts and Humanities, Social Sciences, and Sciences, etc., are organized in three tiers, indicating in broad terms the academic level of the courses and the order in which they should be taken. After completing the lower-division requirements, students select an upper-division capstone course which is intended to assist integration of knowledge from various knowledge domains and to permit focused study within a body of related course work. Writing instruction and writing experiences are integrated in course work throughout the three tiers.

A. The Structure of the General Education Program

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

<table>
<thead>
<tr>
<th>Tier I: 15 semester credit hours</th>
<th>Tier II: 22 semester credit hours</th>
<th>Tier III: 3 semester credit hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics Proficiency [N]</td>
<td>Sciences [Q]</td>
<td>Arts and Humanities# [H], [G]</td>
</tr>
<tr>
<td>Sciences [Q]</td>
<td>Social Sciences# [S], [K]</td>
<td>Social Sciences# [S], [K]</td>
</tr>
<tr>
<td>Intercultural Studies [I], [G], [K]</td>
<td>Intercultural Studies [I], [G], [K]</td>
<td>Intercultural Studies [I], [G], [K]</td>
</tr>
<tr>
<td>Sciences*[B], [P]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Total hours | 40 |

# A total of 9 hours of Arts and Humanitie and Social Sciences with a minimum of 3 in either.
* 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.

It is anticipated that the following new requirement will be in effect starting fall 2000 for students beginning post-secondary enrollment that term.

**American Diversity**

[D] 3 Hours

Courses addressing American Diversity provide an overview of historical and contemporary issues in cultural diversity in the United States. The course work introduces students to one or more issues and engages them in critical inquiry relating to cultural differences and commonalities and their complex interactions in American society.

This requirement adds no new credit hours to the General Education Requirements as American Diversity courses may be double designated.

B. 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 (see C below).

Transfer Students who have completed an approved Associate of Arts (AA) or Associate of Science (AS) degree at a Washington community college or an Associate of Arts—Oregon Transfer degree from an Oregon community college, including a course pattern which approximates the General Education Requirements for Graduation of Washington State University, as determined by the WSU Office of Admissions, will be 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 department. The University Writing Portfolio and the upper-division capstone course are not lower-division requirements and therefore cannot be satisfied by the approved AA or AS degrees.

C. General Education Distribution Requirements

1. **World Civilizations [A]** — 6 hours (GenEd 110 and 111).
2. **Communication Proficiency [C]** — 6 hours including at least 3 in written communication [W] at Tier I, and 3 of [W] or [C] at Tier II. Prior to enrollment in freshman writing courses, all students must take a Writing Placement Examination for the purpose of placement in appropriate writing courses. These placements are mandatory. The Writing Placement Examination is administered during summer New Student Orientation, at the beginning of fall semester, and prior to spring registration. Examination results will place students in the core writing course, Engl 101, Introductory Writing (or 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 Eng 101 on the basis of their performance in the Placement Examination. Questions should be directed to the WSU Writing Lab, Avery Hall, (509) 335-4072.
3. **Mathematics Proficiency [N]** — 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.
4. **Arts and Humanities [H], [G]** — 3 hours minimum; a total of 9 hours at Tier II must be satisfied within Arts and Humanities and Social Sciences.
5. **Social Sciences [S], [K]** — 3 hours minimum; a total of 9 hours at Tier II must be satisfied within Arts and Humanities and Social Sciences.
6. **Intercultural Studies [I], [G], [K]** — 3 hours at Tier II.
7. **Sciences [B], [P], [Q]** — 10 hours including at least 3 hours in Biological Sciences and 3 hours in Physical Sciences, plus 1 credit for three clock hours of laboratory. Students may elect to fulfill the science requirement by taking all 10 credits in Tier II.
8. **Capstone course**—3 hours at Tier III; capstone courses are 400-level and function as summations of the General Education curriculum.
   1. Students are required to take a 400-level capstone course. They may select a course fitting their own interests and previous academic experience.
   2. Capstone courses for General Education credit may not be taken within a student’s own major.
   3. Students may take Tier III courses only after completion of the required Tier I and II courses and after earning approximately 60 total hours.

**Total hours of General Education: 40**
D. The Tiers in the General Education Program

Courses satisfying the distribution requirements listed above are organized conceptually in three tiers.

**Tier I** is designed for entering freshmen and addresses the essential knowledge and skills needed for success in the rest of the undergraduate curriculum. It provides a common foundation for later learning, establishes connections among the principal areas of scholarship, and provides a sense of the fundamental issues and methods in these areas. Tier I consists of core courses (required of all entering freshmen) 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]). With the exception of some of the mathematics courses, Tier I courses are numbered at the 100 level.

**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, Intercultural Studies, Biological and Physical Sciences, and Communication Proficiency. Some more advanced Tier II courses provide continued experience with representative scholarly approaches, methods, and issues. Courses in this tier will commonly be taken in the student’s first two years of study. While Tier II courses are designed to build on Tier I, the demands of scheduling may make it necessary to take courses from these two tiers concurrently. Hence, Tier I courses are not absolute prerequisites for Tier II courses. Tier II courses are designated at the 100, 200, or 300 level, as appropriate.

**Tier III** provides the final component of sequential study in general education, the capstone course. 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.

E. Courses Which Satisfy the Distribution Requirements in General Education

**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. The course work is designed to provide integrated study of the social, political, philosophical, and religious systems of the major world civilizations, along with an introduction to their distinct art forms.

**Tier I**

GenEd 110 World Civilizations I
GenEd 111 World Civilizations II

**COMMUNICATION PROFICIENCY**

[W, C] (6 hours)
Requirements in Communication Proficiency may be satisfied by courses (see below) emphasizing the improvement of communication skills in the English language in both oral and written performances. Courses designed to improve writing and speaking skills primarily in a specific discipline or profession are not eligible for GER status.

**W WRITTEN COMMUNICATION PROFICIENCY**

**Tier I**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 101</td>
<td>Introductory Writing</td>
</tr>
<tr>
<td>Engl 105</td>
<td>Composition for ESL Students</td>
</tr>
<tr>
<td>Engl 198</td>
<td>English Composition Honors</td>
</tr>
</tbody>
</table>

**Tier II**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 200</td>
<td>Expository Writing</td>
</tr>
<tr>
<td>Engl 201</td>
<td>Writing and Research</td>
</tr>
</tbody>
</table>

**Tier II** **Written Communication Proficiency [W]** (continued)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<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 102</td>
<td>Writing and Reasoning</td>
</tr>
</tbody>
</table>

**C COMMUNICATION PROFICIENCY**

**Tier II**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>H D 205</td>
<td>Communication in Human Relations</td>
</tr>
<tr>
<td>SpCom 102</td>
<td>Public Speaking: Theory, Models, and Practice</td>
</tr>
<tr>
<td>SpCom 235</td>
<td>Principles of Group Communication</td>
</tr>
<tr>
<td>SpCom 302</td>
<td>Advanced Public Speaking</td>
</tr>
<tr>
<td>SpCom 324</td>
<td>Argumentation</td>
</tr>
</tbody>
</table>

**MATHEMATICS PROFICIENCY**

[N] (0-6 hours)
The objectives of the Mathematics Proficiency requirement are to establish a foundation of understanding of mathematics beyond arithmetic and algebraic manipulations and to establish a foundation of understanding of the uses of mathematics in applications to real-world problems. 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**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 140</td>
<td>Mathematics for Life Scientists</td>
</tr>
<tr>
<td>Math 171</td>
<td>Calculus I</td>
</tr>
<tr>
<td>Math 202</td>
<td>Introduction to Mathematical Analysis</td>
</tr>
<tr>
<td>Math/Stat 205</td>
<td>Statistical Thinking</td>
</tr>
<tr>
<td>Math 206</td>
<td>Mathematical Analysis for Architects</td>
</tr>
<tr>
<td>Math 210</td>
<td>Introduction to Mathematics</td>
</tr>
<tr>
<td>Math 251</td>
<td>Mathematics for Elementary School Teachers I and</td>
</tr>
<tr>
<td>Math 252</td>
<td>Mathematics for Elementary School Teachers II</td>
</tr>
<tr>
<td>Stat/Math 212</td>
<td>Introduction to Statistical Methods</td>
</tr>
</tbody>
</table>

**ARTS AND HUMANITIES**

[H, G*] (3-6 hours)
Requirements in the Arts and Humanities may be satisfied by courses (see below) which take a historical, critical, or appreciative approach to the study of human culture as manifested in literature, languages, philosophy, art, music, or drama. These courses should introduce the student to the record of human creativity and provide a basis for assessing its value and significance in human development.

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

**Tier II** **Arts and Humanities [H]**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch I D/L A 202</td>
<td>The Built Environment</td>
</tr>
<tr>
<td>Arch 220</td>
<td>Architectural History I</td>
</tr>
<tr>
<td>Arch 221</td>
<td>Architectural History II</td>
</tr>
<tr>
<td>Engl 108</td>
<td>Reading Literature</td>
</tr>
<tr>
<td>Engl 199</td>
<td>English Composition and Literature Honors</td>
</tr>
<tr>
<td>Engl 209</td>
<td>Readings in Literature in English Through the 18th Century</td>
</tr>
<tr>
<td>Engl 210</td>
<td>Readings in Literature in English Since the 18th Century</td>
</tr>
<tr>
<td>Engl/Am St/Hist/W St 216</td>
<td>Main Currents in American Culture</td>
</tr>
<tr>
<td>Engl 261</td>
<td>Literary Masterpieces</td>
</tr>
<tr>
<td>Engl 305</td>
<td>Shakespeare</td>
</tr>
<tr>
<td>Engl 306</td>
<td>Shakespeare</td>
</tr>
</tbody>
</table>
**Tier II Arts and Humanities [H] (continued)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>Engl 308/W St 306</td>
<td>Introduction to Literary Criticism</td>
</tr>
<tr>
<td>Engl/W St 309</td>
<td>Women Writers</td>
</tr>
<tr>
<td>Engl/Hum 335</td>
<td>The Bible as Literature</td>
</tr>
<tr>
<td>Engl 366</td>
<td>The English Novel to 1900</td>
</tr>
<tr>
<td>Engl 368</td>
<td>The American Novel to 1900</td>
</tr>
<tr>
<td>F A 101</td>
<td>Introduction to Art</td>
</tr>
<tr>
<td>F A 201</td>
<td>World Art History</td>
</tr>
<tr>
<td>F A 202</td>
<td>World Art History</td>
</tr>
<tr>
<td>F A 303</td>
<td>Modern Art—19th Century</td>
</tr>
<tr>
<td>F A 304</td>
<td>Modern Art—20th Century</td>
</tr>
<tr>
<td>F A/W St 308</td>
<td>Women Artists I, Middle Ages-1900</td>
</tr>
<tr>
<td>F A/W St 310</td>
<td>Women Artists II, Twentieth Century</td>
</tr>
<tr>
<td>Fren 315</td>
<td>French Civilization and Culture</td>
</tr>
<tr>
<td>Fren 320</td>
<td>Survey of French Literature to 1700</td>
</tr>
<tr>
<td>Fren 322</td>
<td>Survey of French Literature after 1700</td>
</tr>
<tr>
<td>Ger 315</td>
<td>Germanic Civilization</td>
</tr>
<tr>
<td>Hist 101</td>
<td>Classical and Christian Europe</td>
</tr>
<tr>
<td>Hist 102</td>
<td>Modern Europe</td>
</tr>
<tr>
<td>Hist 340</td>
<td>Ancient Greece</td>
</tr>
<tr>
<td>Hist 341</td>
<td>Rome: Republic and Empire</td>
</tr>
<tr>
<td>Hist 342</td>
<td>History of England to 1485</td>
</tr>
<tr>
<td>Hist 343</td>
<td>History of England Since 1485</td>
</tr>
<tr>
<td>Hum 101</td>
<td>Humanities in the Ancient World</td>
</tr>
<tr>
<td>Hum 103</td>
<td>Mythology</td>
</tr>
<tr>
<td>Hum 198</td>
<td>Humanities in the Ancient World: Honors</td>
</tr>
<tr>
<td>Hum 302 (202)</td>
<td>Humanities in the Middle Ages and Renaissance</td>
</tr>
<tr>
<td>Hum 303</td>
<td>Reason, Romanticism, and Revolution</td>
</tr>
<tr>
<td>Hum 304</td>
<td>Humanities in the Modern World</td>
</tr>
<tr>
<td>Hum 340</td>
<td>American Foundings</td>
</tr>
<tr>
<td>Mus 153</td>
<td>Musical Style in Composition</td>
</tr>
<tr>
<td>Mus 160</td>
<td>Survey of Music Literature</td>
</tr>
<tr>
<td>Mus 362</td>
<td>History of Jazz</td>
</tr>
<tr>
<td>Mus 364</td>
<td>Musical Theatre</td>
</tr>
<tr>
<td>Phil 101</td>
<td>Introduction to Philosophy</td>
</tr>
<tr>
<td>Phil 198</td>
<td>Philosophy Honors</td>
</tr>
<tr>
<td>Phil 201</td>
<td>Elementary Logic</td>
</tr>
<tr>
<td>Phil 207</td>
<td>Philosophy of Religion</td>
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<tr>
<td>Phil 220</td>
<td>Aesthetics</td>
</tr>
<tr>
<td>Phil 260</td>
<td>Introduction to Ethics</td>
</tr>
<tr>
<td>Phil 290</td>
<td>History of Ancient and Medieval Philosophy</td>
</tr>
<tr>
<td>Phil 305</td>
<td>History of Modern Philosophy</td>
</tr>
<tr>
<td>Phil 310</td>
<td>Nineteenth-century Philosophy</td>
</tr>
<tr>
<td>Phil 350</td>
<td>Philosophy of Science</td>
</tr>
<tr>
<td>Phil 365</td>
<td>Biomedical Ethics</td>
</tr>
<tr>
<td>Phil 370</td>
<td>Environmental Ethics</td>
</tr>
<tr>
<td>Rus 323</td>
<td>Masterpieces of Russian Literature in Translation</td>
</tr>
<tr>
<td>Span 315</td>
<td>Hispanic Civilization</td>
</tr>
<tr>
<td>Theat (Drama) 160</td>
<td>Introduction to Theatre</td>
</tr>
<tr>
<td>Theat (Drama) 365</td>
<td>Theatre History I: Beginnings to 1700</td>
</tr>
<tr>
<td>Theat (Drama) 366</td>
<td>Theatre History II: 1700 to 1900</td>
</tr>
</tbody>
</table>

**Tier II Arts and Humanities or Intercultural Studies [G]**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anth 201</td>
<td>Art and Society</td>
</tr>
<tr>
<td>CAC 151</td>
<td>Introduction to Chicano Studies</td>
</tr>
<tr>
<td>CAC 171</td>
<td>Introduction to Native American Studies</td>
</tr>
<tr>
<td>CAC 315/Engl 311</td>
<td>Asian American Literatures</td>
</tr>
<tr>
<td>CAC 331/Engl 321</td>
<td>African American Literature</td>
</tr>
<tr>
<td>CAC 353/Engl 345</td>
<td>Introduction to Chicano/Chicana Literature</td>
</tr>
<tr>
<td>CAC 373/Engl 341</td>
<td>Native American Literature</td>
</tr>
<tr>
<td>Engl 222</td>
<td>Anglophone Literature</td>
</tr>
<tr>
<td>F A 301</td>
<td>The Art of Africa, Native America, and the Pacific</td>
</tr>
<tr>
<td>F/A/Asia 302</td>
<td>The Arts of Asia</td>
</tr>
<tr>
<td>Hist/Asia 273</td>
<td>Foundations of Islamic Civilization</td>
</tr>
<tr>
<td>Hist/Asia 370</td>
<td>Civilization of Classical India</td>
</tr>
<tr>
<td>Hist/Asia 373</td>
<td>Chinese Civilization</td>
</tr>
<tr>
<td>Hist/Asia 374</td>
<td>Japanese Civilization</td>
</tr>
<tr>
<td>Mus 163</td>
<td>World Music</td>
</tr>
<tr>
<td>Mus 265/CAC 271</td>
<td>Native Music of North America</td>
</tr>
<tr>
<td>Mus/W St 363</td>
<td>Women of Note</td>
</tr>
<tr>
<td>Phil/Asia 314</td>
<td>Philosophies and Religions of India</td>
</tr>
<tr>
<td>Phil/Asia 315</td>
<td>Philosophies and Religions of China and Japan</td>
</tr>
<tr>
<td>Rus 317</td>
<td>Contemporary Russian Culture and Society</td>
</tr>
<tr>
<td>Span 316</td>
<td>Hispanic American Culture</td>
</tr>
<tr>
<td>Theat (Drama) 145</td>
<td>Contemporary World Theatre</td>
</tr>
</tbody>
</table>

**SOCIAL SCIENCES [S, K#] (3-6 hours)**

Requirements in Social Sciences may be satisfied by courses (see below) with primary emphasis on the social, political, economic, and religious institutions of human society. These courses expose students to data used by the various disciplines to test, explain, or create the concepts, theories, principles, and laws underlying those institutions. These courses may focus upon how social sciences use these constructs to evaluate issues and how such knowledge enhances the understanding of human behavior within society’s institutions.

#K designates courses which meet General Education Requirements in either Social Sciences or Intercultural Studies.

**Tier II Social Sciences [S]**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag Ec 201</td>
<td>Economics in Agriculture</td>
</tr>
<tr>
<td>Ag Ec/Hist 320</td>
<td>American Agriculture and Rural Life</td>
</tr>
<tr>
<td>Anth 101</td>
<td>General Anthropology</td>
</tr>
<tr>
<td>Anth 198</td>
<td>Anthropology Honors</td>
</tr>
<tr>
<td>Anth 330</td>
<td>Origins of Culture and Civilization</td>
</tr>
<tr>
<td>Anth/For L 350</td>
<td>Speech, Thought and Culture</td>
</tr>
<tr>
<td>CAC 335/Hist 313</td>
<td>Civil Rights Movement in America</td>
</tr>
<tr>
<td>Com 101</td>
<td>Mass Communications and Society</td>
</tr>
<tr>
<td>Econ 101</td>
<td>Fundamentals of Microeconomics</td>
</tr>
<tr>
<td>Econ 102</td>
<td>Fundamentals of Macroeconomics</td>
</tr>
<tr>
<td>Econ 198</td>
<td>Economics Honors</td>
</tr>
<tr>
<td>Ger 317</td>
<td>Contemporary German Culture and Society</td>
</tr>
<tr>
<td>HD 101</td>
<td>Human Development Across the Lifespan</td>
</tr>
<tr>
<td>HD 204</td>
<td>Family Systems: Understanding Family Interaction</td>
</tr>
</tbody>
</table>
Tier II  Social Sciences [S] (continued)

Hist 110  American History to 1877
Hist 111  American History Since 1877
Hist 198  History Honors
Hist/W St 298  History of Women in American Society
Hist/W St 350  European Women’s History, 1400-1800
Hist/W St 380  History of Medicine
Hist 381  Science in Western Civilization Through Newton
Hist 382  Science in Western Civilization from Newton to Einstein

Phar/P/W St 250  The American Health Care System

Pol S 101  American National Government
Pol S 102  Introduction to Comparative Politics
Pol S 103  International Politics
Pol S 198  Political Science Honors
Pol S/W St 305  Gender and Politics
Pol S 333  Development of Marxist Thought

Psych 105  Introductory Psychology
Psych 198  Psychology Honors
Psych/W St 324  Psychology of Women
Psych/Soc 350  Social Psychology

R S 334  Principles of Community Development
R S 335  Cross-National Perspectives on Community

SHS 250  Perspectives on Disability

Soc 101  Introduction to Sociology
Soc 102  Social Problems
Soc 198  Introduction to Sociology Honors
Soc 315  Ecology of Human Societies
Soc 331  Population, Resources, and the Future
Soc 340  Social Inequality
Soc 341  Sociology of Religion
Soc/W St 351  The Family
Soc 360  Theories of Deviance
Soc 373  Media, Culture, and Society
Soc/W St 384  Sociology of Gender

W St 200  Introduction to Women Studies
W St 204  Family Systems: Understanding Family Interactions
W St/CAC/Soc 300  Intersections of Race, Class and Gender

Tier II  Social Sciences or Intercultural Studies [K]

Anth 203/CAC 212  Peoples of the World
Anth/Asia/Hist 306  Cultures and Peoples of the Middle East
Anth 307  Contemporary Cultures and Peoples of Africa
Anth 309  Cultural Ecology
Anth/W St 316  Gender and Culture
Anth 320/CAC 377 [K]  The Native Peoples of North America
Anth 331/CAC 376 [K]  America Before Columbus

CAC 211/Hist 201  Introduction to Asian American History

Hist 230  Latin America, The Colonial Period
Hist 231  Latin America, The National Period
Hist/Asia 270  Introduction to South Asian Culture
Hist 275/Asia 275/CAC 217  Introduction to East Asian Culture
Hist 308/CAC 375  North American Indian History, Precontact to Present
Hist 331  Cultural History in Latin America
W St 220  Women, Science, and Culture

INTERCULTURAL STUDIES

[L, G*, K# (3 hours)]

Requirements in Intercultural Studies may be satisfied by courses (see below) which enlarge the student’s international perspective or increase the student’s sensitivity to cultural differences. These courses employ a variety of methodologies and focus on diverse subject matter, but should emphasize non-Western cultures or ethnic minorities studies. Such courses should foster an awareness of the diversity of human values and present a coherent view of the cultures studied.

In regard to substitutions by 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. That is, culture, non-Western culture, must be the formal subject of the academic course. Non-academic work, or academic work on other topics, foreign travel or life-experience abroad cannot qualify.

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

# designates courses which meet General Education Requirements in both Social Sciences or Intercultural Studies.

Tier II  Intercultural Studies [L,G,K]

Anth 130  Great Discoveries in Archaeology
Anth 201 [G]  Art and Society
Anth 203/CAC 212 [K]  Peoples of the World
Anth/Asia/Hist 306 [K]  Cultures and Peoples of the Middle East
Anth 307 [K]  Contemporary Cultures and Peoples of Africa
Anth 309 [K]  Cultural Ecology
Anth/W St 316 [K]  Gender and Culture
Anth 320/CAC 377 [K]  The Native Peoples of North America
Anth 331/CAC 376 [K]  America Before Columbus

CAC 101  Introduction to Comparative American Cultures
CAC 111  Introduction to Asian/Pacific American Studies
CAC 131  Introduction to Black Studies
CAC 151 [G]  Introduction to Chicano Studies
CAC 171 [G]  Introduction to Native American Studies
CAC 211/Hist 201 [K]  Introduction to Asian American History
CAC 227  Introduction to African Studies
CAC 235/Hist 205/W St 235  African-American History
CAC 313/Engl 311 [G]  Asian American Literatures
CAC 331/Engl 321 [G]  Introduction to African American Literature
CAC 339/Pol S 324  Black Politics
CAC 353/Engl 345 [G]  Introduction to Chicano/Chicana Literature
CAC 373/Engl 341 [G]  Native American Literature

Com 321  Intercultural Communication

CropS/SoilS 360  World Agricultural Systems

Engl 222 [G]  Anglophone Literature

FA 301 [G]  The Art of Africa, Native America, and the Pacific
FA/Asia 302 [G]  The Arts of Asia

Fren 316  French Civilization and the Francophone World

GenEd 200  Studying World Civilizations Abroad

Hist 230 [K]  Latin America, The Colonial Period
Hist 231 [K]  Latin America, The National Period
Hist/Asia 270 [K]  Introduction to South Asian Culture
Hist/Asia 272  Introduction to Middle Eastern History
Hist/Asia 273 [G]  Foundations of Islamic Civilization
Hist 275/Asia 275/CAC 217 [K]  Introduction to East Asian Culture
### BIOLOGICAL SCIENCES (Tier II)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>Anth 260</td>
<td>Introduction to Physical Anthropology</td>
</tr>
<tr>
<td>Bio S 101</td>
<td>Direction in Biological Sciences</td>
</tr>
<tr>
<td>Bio S 102</td>
<td>General Biology</td>
</tr>
<tr>
<td>Bio S 103</td>
<td>Introductory Biology</td>
</tr>
<tr>
<td>Bio S 104</td>
<td>Introductory Biology</td>
</tr>
<tr>
<td>Bio S 105</td>
<td>Biological Science Laboratory</td>
</tr>
<tr>
<td>Bio S 201</td>
<td>Contemporary Biology</td>
</tr>
<tr>
<td>Bio S 298</td>
<td>Biological Science Honors</td>
</tr>
<tr>
<td>Bot 120</td>
<td>Introduction to Botany</td>
</tr>
<tr>
<td>Entom 101</td>
<td>Insects and People: A Perspective</td>
</tr>
<tr>
<td>ES/RP 101</td>
<td>The Environment and Human Life</td>
</tr>
<tr>
<td>FSHN 130</td>
<td>Nutrition for Living</td>
</tr>
<tr>
<td>GenCB/Bio S 210</td>
<td>Genetics and Society</td>
</tr>
<tr>
<td>Micro 101</td>
<td>Introductory Microbiology</td>
</tr>
<tr>
<td>Natrs 303</td>
<td>Conservation of Renewable Resources</td>
</tr>
<tr>
<td>Psych 372</td>
<td>Introduction to Physiological Psychology</td>
</tr>
<tr>
<td>SoilS 201</td>
<td>Soil: A Living System</td>
</tr>
<tr>
<td>Zool 135</td>
<td>Animal Natural History</td>
</tr>
<tr>
<td>Zool 330</td>
<td>Principles of Conservation</td>
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</table>

### PHYSICAL SCIENCES (Tier II)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>Astr 135</td>
<td>Descriptive Astronomy</td>
</tr>
<tr>
<td>Astr/Phys 345</td>
<td>Principles of Astronomy</td>
</tr>
<tr>
<td>Astr 390</td>
<td>The Night Sky</td>
</tr>
<tr>
<td>Chem 101</td>
<td>Introduction to Chemistry</td>
</tr>
<tr>
<td>Chem 102</td>
<td>Chemistry Related to Life Sciences</td>
</tr>
<tr>
<td>Chem 105</td>
<td>Principles of Chemistry I</td>
</tr>
<tr>
<td>Chem 106</td>
<td>Principles of Chemistry II</td>
</tr>
<tr>
<td>Chem 350</td>
<td>Chemistry in Contemporary Society</td>
</tr>
<tr>
<td>Geol 101</td>
<td>Introduction to Geology</td>
</tr>
<tr>
<td>Geol 102</td>
<td>Physical Geology</td>
</tr>
<tr>
<td>Geol 180</td>
<td>Honors Geology</td>
</tr>
<tr>
<td>Geol 210</td>
<td>Evolution and Earth</td>
</tr>
<tr>
<td>Geol 322</td>
<td>Geology of the Pacific Northwest</td>
</tr>
<tr>
<td>Geol 323</td>
<td>Geology of the Pacific Northwest</td>
</tr>
<tr>
<td>Phys 101</td>
<td>General Physics</td>
</tr>
<tr>
<td>Phys 102</td>
<td>General Physics</td>
</tr>
<tr>
<td>Phys 201</td>
<td>Classical Physics for Scientists and Engineers</td>
</tr>
<tr>
<td>Phys 202</td>
<td>Classical Physics for Scientists and Engineers</td>
</tr>
<tr>
<td>Phys 205</td>
<td>Physics for Scientists and Engineers I – Honors</td>
</tr>
<tr>
<td>Phys 206</td>
<td>Physics for Scientists and Engineers II – Honors</td>
</tr>
<tr>
<td>Phys 380</td>
<td>Physics and Society</td>
</tr>
</tbody>
</table>
NOTICE: Students are no longer required to take the Tier III Capstone course within an Area of Coherence.

TIER III CAPSTONE COURSES

[T] (3 hours)
Tier III Capstone Courses provide the final component of sequential study in general education. The capstone course is designed to assist students in integrating course work at a more advanced (upper-division) level. The capstone course, taken in the junior or senior year, is intended to permit focused study within a body of related course work. Tier III courses are upper-division (400 level). They have as a general prerequisite 60 hours of course work and completion of one Tier I and three Tier II courses. Additional prerequisites for specific courses are listed below when applicable.

Many of the capstone courses employ an interdisciplinary approach to topical issues or other subject matter. Other courses may be grounded in the methodologies of the sciences, the social sciences, or the arts and humanities.

CAPSTONE COURSES GROUNDED IN SCIENTIFIC METHODOLOGIES

Preparatory work for these courses should include study of the basic scientific principles of the physical and biological sciences—especially the study of living systems and their interactions with the environment (ecology)—as well as a solid background in mathematics. Familiarity with intellectual history or the history of science—including theories of the development and nature of the universe; the history of planet earth and the solar system—is also useful. Students are expected to bring an understanding of the fundamental structures of matter and the principles governing the transformations of matter and energy to these capstones. The capstones typically examine the process by which human beings have developed their understanding of the universe over time.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Astr 450</td>
<td>The Search for Extraterrestrial Life</td>
<td></td>
</tr>
<tr>
<td>Bio S 401</td>
<td>Plants and People</td>
<td>(Prereq Bio S 102, 104, or Bot 120)</td>
</tr>
<tr>
<td>Entom 401</td>
<td>Biological Thought and Invertebrates</td>
<td>(Bio S 104; Rec Zool 150)</td>
</tr>
<tr>
<td>GenCB 455</td>
<td>The Logic of Life</td>
<td></td>
</tr>
<tr>
<td>PharP 483</td>
<td>Human Body Systems: Management and Care</td>
<td>(Prereq FSHN 130 or Micro 101; introductory biology)</td>
</tr>
<tr>
<td>Zool/W St 407</td>
<td>Biology of Women</td>
<td>(Prereq Bio S 102, 103, or 298; junior standing)</td>
</tr>
</tbody>
</table>

CAPSTONE COURSES USING SOCIAL SCIENCE METHODS

These capstone courses address many current issues as well as topics of permanent or perennial interest. Preparatory work for these courses should include study of social science methods of analysis and a solid grounding in historical and cultural studies. Some understanding of the roles of class, gender, and ethnicity, of social institutions and their nature and functions, of political processes and cultural change is also useful.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anth 404</td>
<td>The Self in Culture</td>
<td>(Prereq 100-level Anth, Psych or Soc)</td>
</tr>
<tr>
<td>Anth 405</td>
<td>Medical Anthropology</td>
<td></td>
</tr>
<tr>
<td>Anth 417 (304)</td>
<td>Anthropology and World Problems</td>
<td>(Prereq 3 hours Anth)</td>
</tr>
</tbody>
</table>

CAPSTONE COURSES EMPLOYING THE METHODS OF THE ARTS AND HUMANITIES

These capstone courses examine the variety of artistic forms and traditions through which human beings have explored the world and their own relationship to it, affirmed or challenged the values of their cultures, or expressed their own personal visions. Useful preparatory work includes the history, criticism, theory, or creation of the arts, including music, theater, dance, literature, sculpture, painting and other graphic arts, and architecture. Students are expected to refine their historical perspective on the major art traditions of the world, become familiar with some of the world’s most important genres, achievements, and artists, and to be able to analyze and interpret a variety of art forms.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Am St/Engl 472</td>
<td>Ecological Issues and American Nature Writing</td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
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<td></td>
</tr>
<tr>
<td>Engl/W St 409</td>
<td>Women Writers in the American West</td>
<td></td>
</tr>
<tr>
<td>Engl 415</td>
<td>Traditions of Comedy and Tragedy</td>
<td></td>
</tr>
<tr>
<td>Engl 419</td>
<td>The Twentieth Century Novel</td>
<td></td>
</tr>
<tr>
<td>Engl/Am St 471</td>
<td>Cultural Politics Since World War II</td>
<td></td>
</tr>
<tr>
<td>For L 422</td>
<td>Twentieth-Century Issues in German and Latin American Film and Literature</td>
<td></td>
</tr>
<tr>
<td>Hum 410</td>
<td>Love in the Arts</td>
<td></td>
</tr>
<tr>
<td>Phil 430</td>
<td>Philosophy of Art</td>
<td></td>
</tr>
<tr>
<td>Phil 435</td>
<td>East/West Philosophy of Architecture</td>
<td></td>
</tr>
<tr>
<td>Phil 440</td>
<td>Mind of God and the Book of Nature: Science and Religion (Prereq completion of science General Education Requirements)</td>
<td></td>
</tr>
<tr>
<td>Rus 430</td>
<td>St. Petersburg</td>
<td></td>
</tr>
</tbody>
</table>
Departments, Degree Programs, and Courses

Department of Aerospace Studies

Professor, Colonel C. Herbst, Major L. Ward, Captain A. Sauther, Captain D. Rounsaville.

The Department of Aerospace Studies (Air Force ROTC) 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 commissioning service.

Students may participate in either the four-year or two-year program. The four-year student completes the General Military Course (two years), four-week summer training (Aero 291), and the Professional Officer Course (two years). The two-year student attends a special six-week summer field training (Aero 292) and then completes the Professional Officer Course. The two-year program is designed for any student having two years left in the university, but who has no previous AFROTC or military service.

General Military Course (GMC). This sequence of courses consists of four 2-credit courses normally taken during the freshman and sophomore years. The GMC sequence prepares the student for field training and the Profession 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 4-credit 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 semester book allowance, as well as a $150 per month stipend during fall and spring semesters. Two-year program applicants can compete for a two-year scholarship. All Air Force ROTC students contracted in the POC receive a $150 per month stipend. Contracted POC, not already awarded a scholarship, are eligible for a $1,000 per semester scholarship as long as they maintain minimum academic requirements and standards.

A minor in aerospace studies requires at least 16 hours, half of which must be 300-400-level, from: Aero 101, 102, 201, 202, 311, 312, 411, 412.

Description of Courses

General Military Course

Aero

101 The Air Force Today I 2 (1-2) United States Air Force and ROTC: mission, organization, officerhip, professionalism, military customs, courtesies, officer opportunities, group leadership problems, communicative skills.

102 The Air Force Today II 2 (1-2) United States Air Force and ROTC: mission, organization, officerhip, professionalism, military customs, courtesies, officer opportunities, group leadership problems, communicative skills.

201 The Air Force Way I 2 (1-2) Air Force transition: heritage, leaders, quality, introduction to ethics, values and leadership, group leadership problems, and continuing communication skills.

202 The Air Force Way II 2 (1-2) Air Force transition: heritage, leaders, quality, introduction to ethics, values and leadership, group leadership problems, and continuing communication skills.

Field Training

Aero

291 Four-Week Field Training Course 2 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 Prereq junior standing; by interview only; applicants must apply at least six months in advance. Intensive study of academic core course work and military education at an active Air Force installation. S, F grading.

Professional Officer Course

Aero

299 Directed Studies V 1-4 May be repeated for credit. By interview only.

311 Air Force Leadership and Management I 4 (3-2) Leadership and quality management fundamentals, professional knowledge, leadership ethics and communication skills required of an Air Force officer.

312 Air Force Management and Management II 4 (3-2) Leadership and quality management fundamentals, professional knowledge, leadership ethics and communication skills required of an Air Force officer.

411 National Security Affairs/Preparation for Active Duty I 4 (3-2) National security process, regional studies, advanced leadership ethics, Air Force doctrine; officerhip, justice, civilian control, active duty preparation and professionalism.

412 National Security Affairs/Preparation for Active Duty II 4 (3-2) National security process, regional studies, advanced leadership ethics, Air Force doctrine; officerhip, justice, civilian control, active duty preparation and professionalism.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Program in Aging

Chair, J.D. Teachman.

The Program in Aging offers an interdisciplinary curriculum in gerontology, including courses in the social and health sciences. 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;

(4) To further university and societal goals of equity for persons of all ages.

The program offers a minor in aging. The minor requires a minimum of 18 hours of credit including H D 203 or 305; FSHN 130; Psych/Aging 363; Soc 356 or S W/Aging 396, and approved aging-related courses (6 hours) to be selected from a list of recommended courses available from the program chair. 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, J.D. Teachman (509) 335-9540.

A certificate in aging is granted to students who complete the minor in aging with a g.p.a. 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

305 Gerontology 3 Same as H D 305.

363 Psychology of Aging 3 Same as Psych 363.

396 Social Work with the Aging 3 Same as S W 396.

49
prices, finance, and other courses which provide a background for an understanding of production agriculture. Agribusiness majors complement their courses in agricultural economics with business and accounting courses. 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 agricultural economics or agribusiness.

Employment Opportunities

Majors in agricultural economics and agribusiness find employment in private industry, in government agencies, and with universities. Opportunities to work in foreign countries are also available. Graduates find a wide variety of career opportunities such as farm operators, professional farm or agribusiness managers, county agricultural agents, agricultural representatives for financial institutions, market analysts, field representatives and managers in agribusiness firms, economists for state and federal agencies, foreign agricultural specialists, and as private consultants. A number of students take graduate work to broaden their career opportunities.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

The following schedules set forth the general requirements for the two Bachelor of Science degrees: Bachelor of Science in Agricultural Economics and Bachelor of Science in Agribusiness. Under the agricultural economics degree there are two options: agricultural production and resource management, and food and resource economics. General Education Requirements are met in the department requirements listed for all curricula. Students should consult their advisors for the appropriate sequencing of courses as well as for the selection of electives that best suit their needs and interests. Illustrative programs are available from the department.

At least 40 of the total hours required for the bachelor’s degree in these programs must be in 300-400-level courses.

FIRST YEAR REQUIREMENTS

The first year requirements are common to all agricultural economics and agribusiness degree programs:

Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag Ec 201 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Econ 102 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
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</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Tier I Science [Q] (GER)</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Acctg 230</td>
<td>3</td>
</tr>
<tr>
<td>Ag Ec 210</td>
<td>3</td>
</tr>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>SpCom 102 [C], 235 [C], 302 [C], or 324 [C] (GER)</td>
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Sophomore Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Acctg 231</td>
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</tr>
<tr>
<td>Ag Ec 340</td>
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<td>Physical Sciences (GER)</td>
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<table>
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<tbody>
<tr>
<td>Ag Ec 435 or B Law 210</td>
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<tr>
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<tr>
<td>Dec S 215 or Stat 212 [N] (GER)</td>
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<tr>
<td>Math 201</td>
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Junior Year

<table>
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<td>Ag Ec 370</td>
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<td>Communication Skills Elective</td>
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<td>Math 202 [N] (GER)</td>
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<tr>
<td>Mgt 301</td>
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<tr>
<td>Mktg 360</td>
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<td>Complete Writing Portfolio</td>
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<tr>
<td>Ag Ec 360</td>
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<td>Ag Elective</td>
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<td>Ag Elective</td>
<td>3 or 4</td>
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<tr>
<td>Econ 302</td>
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Senior Year

<table>
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<th>Hours</th>
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<tbody>
<tr>
<td>Ag Ec 430</td>
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<tr>
<td>Ag Ec 460 [M]</td>
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</tr>
<tr>
<td>Ag Ec Elective</td>
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<tr>
<td>Ag Elective</td>
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<td>Econ 320</td>
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<thead>
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<th>Hours</th>
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<tbody>
<tr>
<td>Ag Ec 410, 411, or Dec S 340</td>
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<td>Ag Ec 450 [M]</td>
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<td>Engl 402 [W] (GER)</td>
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<td>Tier III Capstone (GER)</td>
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<tr>
<td>Elective</td>
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</tbody>
</table>

1 All three science GER courses must total 10 credits.
2 Excluding Ag Ec courses.

AGRICULTURAL ECONOMICS DEGREE PROGRAMS

AGRICULTURAL PRODUCTION AND RESOURCE MANAGEMENT DEGREE PROGRAM (120 HOURS)

This option is designed for the student who wants to obtain a broad background, with emphasis on the application of economics to agriculture. Of the
three curricula, this offers the greatest flexibility and, as a result, a wide variety of programs of study can be developed to meet the specific interest of the student.

**Sophomore Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
<th>Subject</th>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Ag Ec 340</td>
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<td>Arts &amp; Humanities [H, G] (GER)</td>
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<tr>
<td>Physical Sciences [P] (GER)</td>
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<td>Intercultural [I, G, K] (GER)</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
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<th>Subject</th>
<th>Course</th>
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<tbody>
<tr>
<td>Ag Ec 320, 490 [M], or B Law 210</td>
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<td>Ag Elective</td>
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<tr>
<td>Complete Writing Portfolio</td>
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**Junior Year**

<table>
<thead>
<tr>
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<th>Hours</th>
<th>Subject</th>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
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<tr>
<td>Math 107, 140 [N] (GER), 171 [N] (GER), 201, 202 [N] (GER), or 220</td>
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<td>Elective</td>
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<td>Complete Writing Portfolio</td>
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<table>
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<th>Subject</th>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
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<td>Econ 300-level Elective</td>
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<td>Econ 301 or 302</td>
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<td>Social Sciences [S,K] (GER)</td>
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**Senior Year**

<table>
<thead>
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<th>First Semester</th>
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<td>Ag Ec 320, 435, 490 [M], B Law 210</td>
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<td>Ag Elective1</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
<th>Subject</th>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
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<td>Ag Ec Elective</td>
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<td>Engl 402 [W] (GER)</td>
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<tr>
<td>Tier III Capstone (GER)</td>
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<td>Elective</td>
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</tbody>
</table>

1 All three science GER courses must total 10 credits.
2 Excluding Ag Ec courses.

**FOOD AND RESOURCE ECONOMICS DEGREE PROGRAM (120 HOURS) **

This option permits in-depth study into management and decision-making tools, while retaining the flexibility to permit an integrated complement of courses to fulfill an individual student’s needs. It provides good preparation for graduate school. Students may take agribusiness courses under this option but are encouraged to pursue a Bachelor of Science in Agribusiness if they seek specialized training in that area.

**Sophomore Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
<th>Subject</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acctg 231</td>
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<tr>
<td>Ag Ec 311, 340, 350, 360, or 370</td>
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<tr>
<td>Arts &amp; Humanities [H, G] (GER)</td>
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<table>
<thead>
<tr>
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<th>Hours</th>
<th>Subject</th>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Interpersonal, [I, G, K] (GER)</td>
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<td>Physical Sciences [P] (GER)1</td>
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**Second Semester**

<table>
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<tr>
<th>Hours</th>
<th>Subject</th>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Ag Ec 311, 340, 350, 360, or 370</td>
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<tr>
<td>Communication Skills Elective</td>
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<td>Math 201 or 220</td>
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<tr>
<td>Social Sciences [S, K] (GER)</td>
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**Junior Year**

<table>
<thead>
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<td>Math 171 [N] or 202 [N] (GER)</td>
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<tr>
<td>Complete Writing Portfolio</td>
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**Second Semester**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Subject</th>
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<th>Credits</th>
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<td>Acctg, Fin, or Business Elective</td>
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<td>Ag Ec 425, 430, 440 [M], 450 [M], 460 [M], or 480 [M]</td>
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**Senior Year**

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<tr>
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<th>Subject</th>
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<th>Credits</th>
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<tr>
<td>Ag Ec 410 or 411</td>
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<td>Ag Elective2</td>
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<th>Credits</th>
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<tr>
<td>300-400-level Ag Ec Elective</td>
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<td>Econ 320, 340, or 401</td>
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<td>Engl 402 [W] (GER)</td>
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<tr>
<td>Tier III Capstone (GER)</td>
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</tbody>
</table>

1 All three science GER courses must total 10 credits.
2 Excluding Ag Ec courses.

**Minor in Agricultural Economics or Agribusiness**

A minor is offered in agricultural economics which requires that a student complete 16 hours of course work in the department, of which 12 hours must be in 300-400-level courses. Students must also complete one of four junior-senior program sequences, e.g., farm management, marketing, agribusiness management or resource economics for the agricultural economics minor. A minor in agribusiness requires Ag Ec 350 or 370 and 450; 360; 430; 460; and enough agricultural economics electives to total 16 hours of course work in the department. A student wishing to declare a minor should consult with an advisor as early as possible to develop the required program.

**Transfer Students**

Students planning to transfer to Washington State University from other institutions should take courses which will meet the 100- and 200-level course requirements in accounting, economics, English, speech, and General Education Requirements in the natural and social sciences. All students planning to major in agribusiness or agricultural economics beyond the bachelor’s degree should consult their advisors as early as possible to develop study programs directed toward their goals.

**Preparation for Graduate Study**

Students who plan to do work in agricultural economics beyond the bachelor’s degree should consult their advisors as early as possible to develop study programs directed toward their goals.

**Description of Courses**

**Agricultural Economics**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Ag Ec 201 (S)</td>
<td>3</td>
<td>Economics in Agriculture: General introduction to economics appropriate for production, consumption and ecological issues in the agricultural and rural sector of the economy.</td>
</tr>
<tr>
<td>311 Natural Resource Economics</td>
<td>3</td>
<td>Rec Ag Ec 201 or Econ 101. The role of economics in natural resource management and policy.</td>
</tr>
<tr>
<td>340 Introduction to Farm and Ranch Management</td>
<td>3</td>
<td>Rec Ag Ec 201 or Econ 101. Appraisal, organization, and management of related types of farms and ranches.</td>
</tr>
<tr>
<td>360 Introduction to Agribusiness Management</td>
<td>3</td>
<td>Rec Ag Ec 201 or Econ 101. Product combinations, resource allocations, personnel, finance, and related problems in the operations of agribusiness firms.</td>
</tr>
<tr>
<td>361 Farm and Natural Resources Appraisal</td>
<td>3</td>
<td>Rec Ag Ec 340, Econ 101, 102. Factors affecting value of land; valuation for loans, sales, assessment, and condemnation. Field trips required. Cooperative course taught by UI (AgEc 316), open to WSU students.</td>
</tr>
<tr>
<td>408 Mathematics for Economists</td>
<td>3</td>
<td>Same as Math 408.</td>
</tr>
<tr>
<td>409 Applied Statistical Methods in Agricultural Economics</td>
<td>3</td>
<td>Rec Math 201, 202, Stat course. Application of sampling techniques, linear regression and analysis of variance and covariance to agricultural economics research problems. Credit not granted for both Ag Ec 409 and 509.</td>
</tr>
<tr>
<td>411 Applied Operations Research Techniques in Agricultural Economics</td>
<td>3</td>
<td>Rec Math 201, 202, Stat course. Linear programming, transportation models, simulation, and inventory models.</td>
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**Agricultural Prices**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>517 Agricultural Prices</td>
<td>3</td>
<td>Rec Ag Ec 201 or Econ 101; Stat course. Factors determining levels and movements of prices in agricultural commodities.</td>
</tr>
<tr>
<td>518 Mathematics for Economists</td>
<td>3</td>
<td>Same as Math 408.</td>
</tr>
<tr>
<td>519 Applied Statistical Methods in Agricultural Economics</td>
<td>3</td>
<td>Rec Math 201, 202, Stat course. Application of sampling techniques, linear regression and analysis of variance and covariance to agricultural economics research problems. Credit not granted for both Ag Ec 409 and 509.</td>
</tr>
<tr>
<td>521 Applied Operations Research Techniques in Agricultural Economics</td>
<td>3</td>
<td>Rec Math 201, 202, Stat course. Linear programming, transportation models, simulation, and inventory models.</td>
</tr>
</tbody>
</table>
425 Economic Analysis of Projects and Policies 3 Rec 300-level course in Ag Ec or Econ. Principles and procedures for evaluating projects and policies using cost-benefit analysis and related economic approaches.

430 Financing Agribusiness Firms 3 Rec Accctg 231, Ag Ec 201, Stat course. Financial management, decision making, and analysis in the agribusiness sectors; capital market institutions and valuation processes.

435 Natural Resource Law 3 Rec Ag Ec 201. Analysis of federal and state courts resolution of real-world conflicts in land and water use.

440 [M] Advanced Farm and Ranch Management 3 Rec Ag Ec 340. Economic principles applied to organization and operation of farms and ranches.

450 [M] Advanced Agricultural Marketing 3 Rec Ag Ec 350 or 370, Econ 301. Stat course. Institutions, practices, policies, and problems in agricultural input and output marketing.


460 [M] Advanced Agribusiness Management 3 Rec Accctg course, Ag Ec 360, Econ 301. Alternatives in the market behavior of firms that handle, process, and trade in agricultural inputs and outputs.

480 [M] Resource Economics 3 Rec 300-level course in Ag Ec or Econ. Economic principles applied to natural resource problems, issues, and policies.

490 [M] Agricultural Policy 3 Rec Ag Ec 201 or Econ 101. Public policy issues related to commercial agriculture and rural areas. Credit not granted for both Ag Ec 490 and 590.

495 Instructional Practicum V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq by interview only. Academic experience in teaching and tutoring undergraduate courses in agricultural economics. S, F grading.

497 Agribusiness Internship V 2-4 May be repeated for credit. By interview only. Off-campus work-study in the agribusiness industry. S, F grading.

498 Seminar 1 May be repeated for credit. For seniors. Current problems. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

502 Economics of Public Choice in Agriculture and Natural Resources 3 Rec Econ 401, 501. Basic concepts of economics of public choice and their application to public policy in agriculture, rural areas and natural resources.

503 Agricultural Demand and Supply Systems 3 Rec Econ 501. Microeconomic duality theory applied to agricultural firms, consumers, and agricultural markets.

509 Applied Statistical Methods in Agricultural Economics 3 Graduate-level counterpart of Ag Ec 409; additional requirements. Credit not granted for both Ag Ec 409 and 509.

510 Statistics for Economists 4 Rec Ag Ec 408. Statistical theory underlying econometric techniques utilized in quantitative analysis of agricultural economic problems.

511 Linear and Nonlinear Programming in Agricultural Economics 3 Rec Ag Ec 408, 411. Mathematical programming applications of duality, parametric programming, inverse matrix methods, transportation problems, game theory, quadratic, integer, separable, and dynamic programming.

512 Advanced Agricultural Econometrics 3 Rec Ag Ec 510. Model construction and estimation for analysis of agricultural supply and demand problems.

513 Advanced Econometric Application 3 Rec graduate-level econometrics course. Theory and computer implementation of advanced econometric techniques.

520 Regional Economics 3 Rec Econ 301, 401, Math 201. The construction of multisector economic models and their use in regional policy analysis. Cooperative course taught by WSU, open to UI students (Ag Ec 520).

521 Advanced Topics in Agricultural Economics V 1-3 May be repeated for credit; cumulative maximum 6 hours. Current topics in agricultural development, marketing, farm management, and agricultural policy.

522 Topics in Agricultural Economics V 1-4 Current topics in agricultural economics.

540 Agricultural Production Economics 3 Rec calculus, intermediate microeconomic theory. Theoretical economic concepts applied to analysis of agricultural problems, production intensity, factor and production combinations, uncertainty and technological change.

541 Agricultural Decision Analysis 3 Rec Ag Ec 540 or Econ 501. Alternative theories and methodologies for dealing with risk and dynamics in economic and resource management decisions.

550 Topics in Agricultural Marketing 3 Rec graduate microeconomic theory. Application of economic theory to topics in agricultural marketing and price analysis.

551 Modeling Agricultural Commodity Markets 3 Theoretical and applied issues in constructing models of agricultural commodity markets for empirical analysis.

560 Agribusiness Management and Marketing 3 Rec Ag Ec 460. Management and marketing problem situations in agribusiness; alternative policies, strategies, and decisions.

580 Advanced Resource Economics 3 Rec Econ 501. Economic analysis of the allocation and use of environmental and natural resources.

581 Advanced Topics in Resource Economics 3 Rec Ag Ec 580. Theoretical underpinnings of advanced topics in resource economics.

597 Agribusiness Internship V 2-4 May be repeated for credit; cumulative maximum 8 hours. Off-campus student work-study in the agribusiness industry. S, F grading.

598 Agricultural Policy 3 Prereq graduate standing. Graduate-level counterpart of Ag Ec 490; additional requirements. Credit not granted for both Ag Ec 490 and 590.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Program in American Studies


The Program in American Studies offers courses of study leading to the degrees of Bachelor of Arts in American Studies, Master of Arts in American Studies, and Doctor of Philosophy (American Studies). American Studies explores the many ways we examine, define, and know ourselves as Americans. The major emphasizes an interdisciplinary approach combining the best insights of such fields as American history, literature, ethnic and women's studies, communication, political science, sociology, art, and architecture. Such an approach provides students with a richer portrait of American culture than they may get from a single discipline and offers a complex sense of our multicultural past and present. The aim is the integrative study of the historical development of American society, politics, literature, arts, and popular culture. The program promotes understanding of why, in the words of Henry James, it is a complex fate to be an American, and why, in the words of Gloria Anzaldúa, to be American is to "live in the Borderlands...to put chile in the borscht, eat whole wheat tortillas, speak Tex-Mex with a Brooklyn accent."

Degree Program Requirements

Honor students complete Honors Requirements in place of General Education Requirements.

The undergraduate major consists of a core curriculum of 30 hours (with some options available within the core) plus an additional 12-hour area of concentration which permits students to investigate particular aspects of American culture.

Core Requirements, in suggested order

Hist 110, 111, Am St/Engl/Hist 216, W St/CAC/Soc 300, Engl 380; Engl 381 or 382; 300-400-level American history; 300-400-level CAC or W St; Am St/Engl 470, 471 or 472.

Areas of Concentration

A series of approved, linked courses in various departments have been established in the following interdisciplinary areas to satisfy the 12-hour requirement for an area of concentration:

1. Environment and Culture
2. Multicultural American West
3. Nationalisms and American Identities
4. Popular Culture, Film, and Mass Media
5. Science, Technology, and Culture
6. The Arts, Culture, and Social Change

The intention of the American studies faculty is to encourage students, with the approval of their advisors, to investigate areas not officially approved in the foregoing list. By designing their own programs and taking courses that will aid in their research, students can investigate the effects of agriculture, engineering, education, architecture, folklore, theatre, or mass communications, to name only a few, on American culture.
AMERICAN STUDIES DEGREE PROGRAM

Freshman Year

First Semester

<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>
</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 Proficiency [N] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
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Second Semester

Communication Proficiency [C,W] (GER) | 3
GenEd 111 [A] (GER)                  | 3
Social Sciences [S,K] (GER)          | 3
Tier I Science [Q] (GER)             | 3
Science Elective                     | 1
Elective                             | 3

Sophomore Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>4</td>
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<tr>
<td>Foreign Language or Elective</td>
<td>4</td>
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<tr>
<td>Hist 110</td>
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Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Foreign Language or Elective</td>
<td>4</td>
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<tr>
<td>Hist 111</td>
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<tr>
<td>Physical Sciences [P] (GER)</td>
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Junior Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Am St 216</td>
<td>3</td>
</tr>
<tr>
<td>Engl 380, 381, or 382</td>
<td>3</td>
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<tr>
<td>W St 300</td>
<td>3</td>
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<tr>
<td>Electives</td>
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<tr>
<td>Complete Writing Portfolio</td>
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Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Engl 380, 381, or 382</td>
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<tr>
<td>Major Concentration Area Elective 1</td>
<td>6</td>
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<tr>
<td>Electives</td>
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Senior Year

First Semester

<table>
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<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>300-400-level CAC or W St Elective</td>
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<tr>
<td>Arts &amp; Humanities [H,G] or</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
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<tr>
<td>Intercultural [I,G,K] (GER)</td>
<td>3</td>
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<tr>
<td>One from: Am St 470, 471, or 472</td>
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<tr>
<td>Elective</td>
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Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>300-400-level American Hist Elective</td>
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<tr>
<td>Major Concentration Area Electives 1</td>
<td>6</td>
</tr>
<tr>
<td>One from: Am St 470, 471, or 472</td>
<td>3</td>
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<tr>
<td>Tier III Capstone (GER)</td>
<td>3</td>
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</tbody>
</table>

Minor in American Studies

A minor in American Studies requires 21 hours which shall include:

- Am St/Eng/His/W St 216 American Culture 3
- Two courses from: Am St/Engl 470, 471, or 472 6
- Two courses in an area of concentration 6
- 300-400-level American literature 3
- 300-400-level American history 3

Preparation for Graduate Study

American Studies majors considering graduate work in this field should include college-level courses in at least one modern European foreign language in their undergraduate program. An area of concentration in American literature, American history, or comparative American cultures is strongly recommended, as are advanced writing courses.

Students pursuing BA degrees in English, history, and other humanities and social science areas may also apply to the graduate Program in American Studies at WSU; a guide to the MA and PhD program is available through the office of the Director of American Studies.

Descriptive Courses

American Studies

- Am St 216 [H] American Culture 3 Same as Engl 216.
- 424 History of American Popular Culture 3 Same as Hist 424. Credit not granted for both Am St 424 and 524.
- 470 Culture of the American West 3 May be repeated for credit; cumulative maximum 6 hours. Same as Engl 470.
- 471 [H] 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 in an appropriate area of coherence. Representation of nature in American fiction and nonfiction; role of culture in shaping environmental problems and solutions.
- 496 Topics in American Studies 3 May be repeated for credit; cumulative maximum 9 hours. Same as Engl 496. Credit not granted for both Am St 496 and 596.
- 500 Colloquium 1 May be repeated for credit; cumulative maximum 12 hours. Current research in American studies. S, F grading.
- 501 Readings in American Studies I 3 May be repeated for credit; cumulative maximum 6 hours. Readings in key texts in American culture, beginnings to 1865.
- 502 Readings in American Studies II 3 May be repeated for credit; cumulative maximum 6 hours. Readings in key texts in American culture, 1865 to present.
- 513 Theory and Method in American Studies 3 Same as Engl 513.
- 524 History of American Popular Culture 3 Graduate-level counterpart of Am St 424; additional requirements. Credit not granted for both Am St 424 and 524.
- 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. Graduate-level counterpart of Am St 496; additional requirements. Same as Engl 596. Credit not granted for both Am St 496 and 596.

Department of Animal Sciences


The department offers courses of study leading to the degrees of Bachelor of Science in Animal Sciences, Master of Science in Animal Sciences, and Doctor of Philosophy in Animal Sciences. The department participates in the Joint Program for Animal Sciences and Veterinary Medicine, leading to Bachelor of Science in Animal Sciences and Doctor of Veterinary Medicine degrees. The department also participates in the graduate Program in Nutrition which offers a Doctor of Philosophy degree and in Genetics and Cell Biology which offers Master of Science and Doctor of Philosophy degrees.

Bachelor’s Program

Animal sciences students learn the biological and economic principles and practices associated with agricultural animal production, and companion and laboratory animal care. This prepares graduates for a wide variety of career opportunities. These opportunities include animal production and food processing (meats, dairy products, etc.); the service industries (including feed manufacturing and sales, pharmaceuticals, artificial insemination, agricultural equipment and financial institutions, etc.), and government agencies. Continued education leading toward graduate or professional degrees is available for students from the animal sciences program. Employers seek out graduates in animal sciences because of their practical and technical knowledge of animal care and production.

Students in animal sciences take a wide variety of agricultural and non-agricultural courses, receiving in-depth training in the biology of farm and companion animals. The curriculum is designed to provide students with the scientific, practical, and people skills to make them productive members of the food production, animal care and related industries. Prior to their junior year, students select an option to coincide with their interests. These options have required courses and electives which allow program specialization.

The Industry Option emphasizes the scientific practices of farm and companion animals and other areas of agriculture. This option is recommended for students preparing to work in agricultural animal production, companion animal care, and agribusiness. The Production Management Option emphasizes the business aspects of animal agriculture and companion animal management. This option requires fewer basic science courses while emphasizing economics and practical experience.
Employment opportunities are found in general management of agricultural animal enterprises and the financial industry related to agriculture. The Pre-veterinary Medicine/Science Option places more emphasis on basic science courses. This option is recommended for students planning to apply to the professional program leading to the Doctor of Veterinary Medicine, graduate school, or to study further and work in more technical or specialized aspects of the industry, such as extension service, teaching, technical consulting or laboratory work.

Many opportunities outside the classroom are available for students to further their educational experiences. Animal sciences students are encouraged to participate as part-time employees in the livestock production centers or in research and teaching programs within the department. Many opportunities are available to students for on-the-job training in professional internships with different segments of the agricultural, companion animal or research sectors. Active student clubs within the Department of Animal Sciences and the College of Agriculture and Home Economics and the university community provide students with both professional and social contacts with faculty and other students. Several 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 other backgrounds. 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.

### Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

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

One of the following degree programs must be chosen and completed.

#### INDUSTRY DEGREE PROGRAM (121 HOURS) 📣FYDA

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>A S 101</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>A S 180</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Chem 101 [P]  (GER)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Engl 101 [W]  (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Math 107, 140 [N], 171 [N], 201, or 202 [N] (GER)</td>
<td>3 or 4</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>A S 166, 172, 174, 175, 176, or 178</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Bio S 103 [B] (GER)</td>
<td>4</td>
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<tr>
<td>Chem 102 [P] (GER)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>SpCom 102 [C] or H D 205 [C] (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>GenEd 110 or 111 [A] (GER)</td>
<td>3</td>
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<table>
<thead>
<tr>
<th>Sophomore Year</th>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>A S 260, 272, or 360</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Ag Ec 201 [S] or Econ 101 [S] (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>GenEd 110 or 111 [A] (GER)</td>
<td>3</td>
<td></td>
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<tr>
<td>V MS 261</td>
<td>3</td>
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<tr>
<th>Second Semester</th>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Ag Ec 210 or Cpt S 405</td>
<td>3</td>
<td></td>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>InterCultural [I,G,K] (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SoilS 201</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Stat 212 [N] (GER) or 412²</td>
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#### PRODUCTION MANAGEMENT DEGREE PROGRAM (121 HOURS) 📣FYDA

<table>
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<th>Freshman Year</th>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>A S 101</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>A S 166 or 178¹</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>A S 180</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Chem 101 [P] (GER)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Math 107, 140 [N], 171 [N], 201, or 202 [N] (GER)</td>
<td>3 or 4</td>
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<table>
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<tr>
<th>Second Semester</th>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>A S 166, 172, 174, 175, or 176¹</td>
<td>1</td>
<td></td>
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<tr>
<td>Bio S 103 [B] (GER)</td>
<td>4</td>
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<tr>
<td>Chem 102 [P] (GER)</td>
<td>4</td>
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<tr>
<td>H D 205 [C] or SpCom 102 [C] (GER)</td>
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<td>GenEd 110 [A] or 111 [A] (GER)</td>
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<tr>
<th>Sophomore Year</th>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>A S 260 or 272</td>
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<td>Ag Ec 201 [S] (GER)</td>
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<th>Second Semester</th>
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<th>Hours</th>
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<tbody>
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<td>Ag Ec 210</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
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<tr>
<td>InterCultural [I,G,K] (GER)</td>
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<tr>
<td>SoilS 201</td>
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<td>Stat 212 [N] (GER) or 412²</td>
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<tr>
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<tr>
<td>A S 313</td>
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<tr>
<td>Acctg 230</td>
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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>Engl 201 [W] or 402 [W] (GER)</td>
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<td>Elective²</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>A S 330</td>
<td>3</td>
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<tr>
<td>A S 350</td>
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<tr>
<td>A S 351</td>
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<tr>
<td>A S 378</td>
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<tr>
<td>A S 380</td>
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<tr>
<td>Ag Ec 340</td>
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<td>Elective³</td>
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<thead>
<tr>
<th>Senior Year</th>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>A S 285, 488, CropS 302, 303, or NATRS 351</td>
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<tr>
<td>A S 406 [M]²</td>
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<tr>
<td>A S 440</td>
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<td>A S 454³</td>
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<tr>
<td>Elective⁴</td>
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<tr>
<th>Second Semester</th>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>A S 408²</td>
<td>3</td>
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<tr>
<td>A S 466, 468, 472, 474 [M], 476, or 478 [M]³</td>
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<tr>
<td>A S 488 [M] or NATRS 351¹</td>
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<tr>
<td>Tier III Capstone (GER)</td>
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<tr>
<td>Elective³</td>
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</table>

¹ Some courses offered fall or spring term only.
² Take Stat 212 unless math proficiency has been taken.
⁴ Strongly recommended.

<table>
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<tr>
<th>Junior Year</th>
<th>First Semester</th>
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<tbody>
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<td>A S 330</td>
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<tr>
<td>A S 350</td>
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<td>A S 351</td>
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<td>A S 378</td>
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<td>A S 380</td>
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<td>Ag Ec 340</td>
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<th>Second Semester</th>
<th>First Semester</th>
<th>Hours</th>
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<tr>
<td>A S 408³</td>
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<tr>
<td>A S 466, 468, 472, 474 [M], 476 [M] or 478¹</td>
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<tr>
<td>Tier III Capstone (GER)</td>
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<tr>
<td>Electives⁵</td>
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</table>

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⁴ Strongly recommended.

#### PRE-VETERINARY MEDICINE/SCIENCE DEGREE PROGRAM (121 HOURS) 📣FYDA

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<tr>
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<th>First Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>A S 101</td>
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<tr>
<td>A S 180</td>
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<tr>
<td>Chem 105 [P]  (GER)</td>
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<td>A S 166, 172, 174, 175, 176, or 178¹</td>
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<td>A S 260 or 272</td>
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<tr>
<td>Ag Ec 201 [S] (GER)</td>
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<tr>
<td>GenEd 110 or 111 [A] (GER)</td>
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Students will enter the university under normal procedures and must be advised in the Department of Animal Sciences. Qualified students will be invited to apply for the program. A high scholastic achievement and the promise of the same and demonstrated experience and interest in working with farm animals will be the primary criteria for initial invitation. Selected students will be identified and invited to apply for the AS-DVM program in the second semester of the first year. Students would then declare animal sciences as a major in the first semester of the sophomore year and enter the joint program in that year. The procedures for acceptance into the DVM program will be the same as those for other applicants. Successful participants will complete the three-year animal sciences program and begin the veterinary medicine curriculum in their fourth year of study. A 3.0 or higher grade point average for the first year and a 3.3 gpa upon completion of the second year will be required for the program. If the student is not accepted or withdraws from the AS-DVM program, the student could earn the BS in Animal Sciences and/or apply to the College of Veterinary Medicine under normal procedures.

Honors students complete Honors Requirements in place of General Education Requirements.

First Year

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<tr>
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Second Year

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Junior Year

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<td>A S 330</td>
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<td>A S 350</td>
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<tr>
<td>Elective</td>
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Transfer Students

Students planning to transfer to the Department of Animal Sciences, Washington State University, from community colleges or other institutions should complete as many of the required courses as possible prior to transfer. Credit not granted for both A S 101 and 103.

Minor in Animal Sciences

A minor requires a minimum of 18 semester hours of animal science courses, half of which must be in 300-400-level work. Students wishing to declare a minor should consult the department as early as possible to develop an approved schedule of courses.
Department of Animal Sciences

178 Swine Management Laboratory 1 (0-3) Management practices associated with a swine enterprise. Field trip and special clothing required. S, F grading. Cooperative course taught by WSU, open to UI students (AVS 178).

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 Nutrition of Pet Animals 2 Prereq biology course, chemistry course. Nutritional principles governing optimum growth, health and performance of pet animals. Cooperative course taught by WSU, open to UI students (AVS 204).

213 Applied Animal Nutrition 3 Prereq one semester Chem; one semester Bio S. Not open to A S majors. Characteristics of nutrients, nutritional requirements, ration calculations and feeding practices for farm animals. Credit not granted for both A S 213 and 313. Cooperative course taught jointly by WSU and UI (AVS 205).

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 203).

266 Equine Enterprise Management 2 Management principles that are applicable to equine enterprises.

269 Beginning Equitation 1 (0-3) Equitation fundamentals, developing proficiency in riding and schooling techniques for horse and rider; anatomy of horse, equipment, care and safety.

272 Dairy Cattle Traits 2 (1-3) Evaluating form and function in dairy cattle; measurement of production and evaluation of type. Cooperative course taught by WSU, open to UI students (AVS 272).

285 Rights and Welfare of Animals 3 Prereq Bio S 102 or 103. 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 204).

305 Introduction to Animal Growth and Development 3 Prereq A S 101, Bio S 103. 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 304).

306 Introduction to Skeletal Muscle Physiology 3 Prereq A S 305. 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 315).

313 Feeds and Feeding 4 (3-3) Prereq Bio S 103. Utilization, practices, requirements, nutritive characteristics, and calculations of rations for animals. Field trip required. Credit not granted for both A S 213 and 313. Cooperative course taught jointly by WSU and UI (AVS 306).

314 Principles of Nutrition 3 Prereq Bio S 104; Chem 102 or 106; Chem 240. Digestion, absorption, metabolism, and function of nutrients. Cooperative course taught jointly by WSU and UI (AVS 305).

330 Genetics of Farm Animals 3 (2-3) Prereq GenCB 301; Stat 212 or 412. Genetic principles applied to breeding of farm animals. Cooperative course taught by WSU, open to UI students (AVS 330).

350 Reproduction of Farm Animals 3 Prereq Bio S 104; Chem 102 or 106. Anatomy and physiology of reproductive organs; hormones of reproduction; production of gametes; artificial insemination; fertilization; prenatal development; fertility and infertility. Cooperative course taught jointly by WSU and UI (AVS 452).

351 Reproduction of Farm Animals Laboratory 1 (0-3) Prereq A S 350 or c/f. Laboratory and field techniques used in animal reproduction involving hormones, artificial insemination, semen evaluation and pregnancy.


366 Equine Science 3 (2-3) Prereq A S 166 or equivalent horse experience. Development, functional use, behavior and management of the horse. Field trip required. Cooperative course taught by WSU, open to UI students (AVS 366).

367 Prevention and Management of Equine Health Problems 3 Same as V MS 367.

369 Principles and Techniques of Equine Training 3 (1-6) Prereq experience with horses; by interview only. Described steps using various techniques to illustrate the principles of training; equine psychology, anatomy and physiology related to training.

378 Advanced Livestock and Meat Selection and Evaluation 2 (0-6) May be repeated for credit. Prereq A S 260 or 272. Principles and practices of livestock and meat selection and evaluation. Off-campus and weekend participation required.

380 Seminar 1 Prereq junior standing. Issues and preparation for careers in animal sciences areas.

398 Cooperative Education Extension V 2-8 May be repeated for credit; cumulative maximum in A S 398 and 399: 12 hours. Cooperative education extension in livestock production or related field. S, F grading.


428 Topics in Animal Breeding 2 May be repeated for credit; cumulative maximum in A S 398 and 399: 12 hours. Directed internship in livestock production and related fields conducted at WSU centers on or off campus. S, F grading.

466 Horse Production 2 (0-6) Prereq A S 351. Techniques in semen evaluation and pregnancy. Cooperative course taught jointly by WSU and UI (AVS 466).

472 Aquaculture 2 Prereq Bio S 104. Reproduction, nutrition, behavior, management, breeding, physiology, health, and laws governing aquaculture of finfish and shellfish. Field trip required.


476 Sheep Science 3 (2-3) Prereq A S 313, 330, 350. Application of principles of genetics, reproduction, nutrition, health, marketing to management; and use of wool. Cooperative course taught by UI (AVS 476), open to WSU students.

478 [M] Swine Production 3 (2-3) Prereq A S 313, 330, 350. Principles of breeding, feeding, management, and marketing of swine. Field trips and special clothing required. Cooperative course taught by WSU, open to UI students (AVS 478).

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

499 Special Problems 1 V 1-4 May be repeated for credit. S, F grading.

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

56
504 Special Topics V 1-12 Cooperative course taught by (AVS 504), open to WSU students.

505 Experimental Nutrition V 1-3 (0-0) Prereq BC/BP 364; Chem 220, 222. Laboratory techniques used in nutritional research; modern biochemical methods of analysis; introduction to physiological chemistry.

507 Advanced Nutrient Metabolism 2 Prereq A S 406 or 408; BC/BP 364. Advanced topics in metabolic regulation of carbohydrate, fat, and amino acid use by animals. Cooperative course taught by WSU, open to UI students (AVS 512).  

510 Digestion and Nutrient Utilization in Animals 2 (1-2) Gastrointestinal physiology, rate of passage, feed intake regulation, measures of digestibility, starch, fat and nonstarch polysaccharide, and digestion and utilization of nutrients. Cooperative course taught by WSU, open to UI students (AVS 510).

513 Mineral and Vitamin Metabolism 4 Prereq A S 406 or 408; BC/BP 364. Absorption, excretion, metabolism, dietary requirements and interactions of minerals and vitamins in animals and humans. Cooperative course taught by WSU, open to UI students (AVS 513).

528 Topics in Animal Breeding 2 May be repeated for credit; cumulative maximum 4 hours. Graduate-level counterpart of A S 428; additional requirements. Credit not granted for both A S 428 and 528.

540 Seminar in Animal Physiology 1 May be repeated for credit. Current developments in animal physiology. Cooperative course taught jointly by WSU and UI (AVS 520).

550 Advanced Reproduction 4 (3-3) Prereq A S 350. Physiology of sexual maturation: gametogenesis; sexual cycle; fertilization; embryonic development; physiological, chemical and immunological characterization of hormones of reproduction. Cooperative course taught by WSU, open to UI students (AVS 526).

551 Endocrine Physiology 3 Graduate-level counterpart of A S 451; additional requirements. Credit not granted for both A S 451 and 551. Cooperative course taught jointly by WSU and UI (AVS 551).

556 Embryo Transfer in Domestic Animals 2 Prereq A S 350. Embryo transfer in domestic animals including techniques, equipment, and state-of-the-art biotechnology.

557 Laboratory in Embryo Transfer 1 (0-3) Prereq c/i in A S 556. Laboratory principles and practices in embryo transfer.

560 Domestic Animal Growth 2 Prereq A S 406, 408, or 440; BC/BP 364 or 563. Advanced topics in principles of growth and regulation in domestic animals. Cooperative course taught jointly by WSU and UI (AVS 560).

573 Advanced Dairy Management 2 (1-3) Graduate-level counterpart of A S 473; additional requirements. Credit not granted for both A S 473 and 573.

588 Perspectives in Biotechnology 3 Graduate-level counterpart of A S 488; additional requirements. Credit not granted for both A S 488 and 588.

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

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Department of Anthropology

Professor and Department Chair, T.A. Kohler; Professors, R. E. Ackerman, J. H. Bodley, G.S. Krantz, W. D. Lipe, P. J. Mehringer, Jr., W. Willard; Associate Professors, B. S. Hewlett, J.M. Mageo, L. Stone; Assistant Professors, G. A. Huckleberry, S. A. Weber; Associate Professor and Director of Center for Northwest Anthropology, W. Andrejksy, Jr.

The curriculum includes courses in the four major subfields of anthropology: archaeology, cultural/social anthropology, linguistic anthropology, and physical anthropology. The courses will familiarize students with current issues in human evolution, linguistics, the prehistoric development of culture, and the role of culture in the contemporary global system. All undergraduate majors are required to gain a background in all four of these major subfields. Graduate students may specialize in archaeology, cultural anthropology, or physical anthropology. The program in archaeology emphasizes the prehistory of western North America as well as ecological archaeology, past environments, quantitative methods, modeling and simulations, and lithic analysis, and includes courses taught by faculty with specialties in geoarchaeology, palynology, and zooarchaeology. The department also conducts summer archaeological field schools in the Pacific Northwest and has professional-level experiences for anthropology students through the Center for Northwest Anthropology. The program in cultural anthropology emphasizes issues in international development, psychological anthropology, cultural ecology, medical anthropology, gender, and small-scale cultures.

Departmental offices and laboratories are located in College Hall, near the center of campus. Physical facilities include special laboratories for physical anthropology, palynology, 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, and private consulting firms. In addition, anthropology provides a strong foundation for a liberal arts education.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

The Bachelor of Arts degree in the undergraduate program requires a total of 120 semester hours. At least 40 of the total hours required for the bachelor’s degree in this program must be in 300-400-level courses. See the General Education Requirements (GERs) for graduation in the WSU catalog. A minimum of 33 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. Courses are 3 credit hours exception. Anh 300 and 499 which are variable. The anthropology major must achieve a grade of C- or better in Anh 203, 230, 260, 490, and in one course from each of the following: a) Anh 300, 301, 303, 304, 319, 327, 336, 337, 401, 402, 403, 404, 405, 417, 418, 419, 428, 494, or 495; b) Anh 350, 355, or 450; c) Anh 463, 465, 466, 468; d) Anh 300, 330, 331, 333, 336, 370, 430, 435, 436.

Majors in anthropology are advised to take advanced work in two supporting fields.

ANTHROPOLOGY DEGREE PROGRAM (120 HOURS)

First Semester Hours
Freshman Year

Anh 203 3
Engl 101 [W] (GER) 3
Foreign Language, if necessary, or Elective 1
GenEd 110 [A] (GER) 3
Tier I Science [Q] (GER) 3
Second Semester Hours

Anh 260 3
Biological Sciences [B] (GER) 4
Communication [C,W] (GER) 3
Foreign Language, if necessary, or Elective 1
GenEd 111 [A] (GER) 3
Sophomore Year Hours

Anh 230 3
Math Proficiency [N] (GER) 3 or 4
Physical Sciences [P] (GER) 4
Social Sciences [S,K] (GER) 3
Second Semester Hours

Arts & Humanities [H,G] or
Social Sciences [S,K] (GER) 6
Biological Anth Elective 3
Cultural Anth Elective 3
Intercultural [I,G,K] (GER) 3
Science Elective 1
Junior Year Hours

Arts & Humanities [H,G] (GER) 3
Anh Electives 3
Complete Writing Portfolio
Second Semester Hours

Archeology Anth Elective 3
Anh Arts & Humanities [H,G] (GER) 3
Social Sciences [S,K] (GER) 3
Electives 6
Senior Year Hours

Anh 300-400-level Electives 3 or 4
Anh Electives 3
Consider study abroad or summer field school

57
Anth 490 [M] 3
Tier III Capstone (GER) 3

Some anthropology courses may be taken in either fall or spring in a given year. Refer to the time schedule and your advisor.

1 Two years of one foreign language from high school or one year at college required.
2 One 4-credit Tier I Science may be substituted for both the 3-credit Tier I Science and the 1-credit Science Elective.
3 Math 212 preferred.
5 Concentrating electives beginning in the junior year in one subarea of anthropology or in a minor discipline in consultation with the advisor is recommended.
6 Take three classes from the four subdisciplines.

Minor in Anthropology

A student with 90 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. A minimum grade of C- is required in each course contributing to the minor.

Preparation for Graduate Study

As preparation for work toward an advanced degree a student should have completed not less than 18 hours in anthropology.

Description of Courses

Anthropology

Anth

101 [S] General Anthropology

3 Major subfields of anthropology: physical (human evolution and race), cultural-social, archaeology, and linguistics.

130 [I] Great Discoveries in Archaeology

3 Impact of great archaeological discoveries and the work of archaeologists on our sense of the past.

198 [S] Anthropology Honors 3

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.

230 Introduction to Archaeology

3 Development of a dynamic picture of past human behavior from archaeological evidence.

256 Introduction to Syntax and Semantics

3 Same as Engl 256.

260 [B] Introduction to Physical Anthropology

3 Evidence for human evolution; processes of racial differentiation; techniques of physical anthropology.

300 Field Methods

V 2-8 Prerequisite by application. Practice in methods of archaeological, ethnological, or linguistic field research.

302 [M] Childhood and Culture

3 Prerequisite 3 hours Anth or H D. How culture patterns 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 Major findings of ecological anthropology relating to problems of population, resources, and environment in small-scale cultures.

316 [K] Gender and Culture

3 Prerequisite Anth 101, Psych 105, Soc 101, or W St 200; sophomore standing. Cross-cultural examination of the status and roles of women and men, the institution of marriage, and symbols of gender valuation.

320 [K] Native Peoples of North America

3 A culture history/culture area study of native North America.

327 Contemporary Native Peoples of the Americas

3 Contemporary cultures of Native Americans in South America, Meso America, and North America.

330 [S] Origins of Culture and Civilization

3 Prerequisite 3 hours Anth. Prehistoric roots of modern culture from the beginnings of humankind to the rise of the first great civilizations.

331 [K] America Before Columbus

3 Prerequisite 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.

333 Archaeology of Washington

3 Prerequisite Anth 230, 331, or 370. Prehistory of Washington state; for majors and nonmajors.

336 Old World Civilizations

3 Prerequisite Anth 230, 230, or 330. Evolution of complex society, urbanism, states and empires in the eastern hemisphere; survey of European, African and Asian civilizations.

350 [S] Speech, Thought and Culture

3 The role of language in social situations and as a reflection of cultural differences.

355 Language in History

3 Writing systems, language reconstruction of culture history, language families, evolution, and parallels.

370 Past Environments and Culture

3 People and their environments from the Ice Age to modern times; archaeological, ecological, and biological data.

401 [M] History of Anthropological Theory

3 Prerequisite 6 hours Anth. Development of theories in cultural anthropology; contributions of specific individuals; representative classics. Credit not granted for both Anth 401 and 501.

402 Cross-cultural Gender and Kinship

3 Prerequisite Anth 101 or Soc 101. Principles of kinship in anthropology applied to questions of cross-cultural gender definition. Credit not granted for both Anth 402 and 502.

404 [K] The Self in Culture

3 Prerequisite 100-level Anth, Psych or Soc; completion of one Tier I and three Tier II courses in appropriate area of coherence. Anthropological and psychological theories, folk theories in non-Western cultures, other time and place differences and contemporary American culture regarding the self.

405 [M] [K] Medical Anthropology

3 Prerequisite completion of one Tier I and three Tier II courses in appropriate area of coherence. Relationships among disease, curing, culture and environment; non-Western medical systems; political economy of health care.

417 (304) [T] Anthropology and World Problems

3 Prerequisite credits Anth, completion of one Tier I and three Tier II courses in appropriate area of coherence. 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.

419 Cultural Components of International Business

3 Introduction to the cultural aspects of business.

428 Topics in Ethnography

3 May be repeated for credit; cumulative maximum 9 hours. Prerequisite 3 hours Anth. Culture history, ethnography, theoretical, and contemporary problems of selected culture areas. Credit not granted for both Anth 428 and 528.

430 [M] Introduction to Archaeological Method and Theory

3 Prerequisite Anth 230; 330 or 331. Archaeological theory in anthropological perspective; current trends in method and theory in American archaeology. Credit not granted for both Anth 430 and 530.

436 Ethnoarchaeology

3 Multidisciplinary approach (archaeology, ethnography and history) to the interpretation of past human cultures. Credit not granted for both Anth 436 and 536.

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 for Anth 450.

463 Human Races

3 Prerequisite Anth 260. Human population biology, dynamics of evolution, human ecology, and their relationship to the problem of human racial variation. Credit not granted for both Anth 463 and 563.

465 Human Evolution

3 Prerequisite Anth 260. Human origins in the light of the fossil record and evolutionary theory. Credit not granted for both Anth 465 and 565.

466 Human Osteology

3 (2-3) Prerequisite Anth 260. Observations and measurements of human skeletons; variations based on age, sex, and race; comparisons with fossil human and higher primates. Credit not granted for both Anth 466 and 566.

468 [S] [M] Sex, Evolution and Human Nature

3 Prerequisite 3 hours Anth or Bio S; completion of one Tier I and three Tier II courses in the appropriate area of coherence. Human sexuality, male-female relations, cooperation, violence and parent-child relations examined cross-culturally and in nonhuman primates utilizing evolutionary and biocultural perspectives.

490 [M] Integrative Themes in Anthropology

3 Prerequisite Anth 203, 230, 260. Current research crosscutting traditional subdisciplines of anthropology.

Open only to students in the Honors Program.
494 Development, Environment, and Health in Latin America (Ecuador) V 3-10 Prereq basic fluency in Spanish. Interdisciplinary examination of inter-relationships among development, environment, and health with emphasis on Ecuador. Taught in Ecuador.

495 Ecuador Internship/Independent Study V 3-10 Prereq Anth 494; basic fluency in Spanish; by interview only. Individually designed internships with development-related Ecuadorian nongovernmental organizations or independent field projects supervised by Ecuadorian anthropologists. Taught in Ecuador.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

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

501 History of Anthropological Theory 3 Graduate-level counterpart of Anth 401; additional requirements. Credit not granted for both Anth 401 and 501.

502 Cross-cultural Gender and Kinship 3 Graduate-level counterpart of Anth 402; additional requirements. Credit not granted for both Anth 402 and 502.

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.

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

528 Topics in Ethnography 3 Graduate-level counterpart of Anth 428; additional requirements. Credit not granted for both Anth 428 and 528.

530 Introduction to Archaeological Method and Theory 3 Graduate-level counterpart of Anth 430; additional requirements. Credit not granted for both Anth 430 and 530.

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).

536 Ethnoarchaeology 3 Graduate-level counterpart of Anth 436; additional requirements. Credit not granted for both Anth 436 and 536.

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

539 Prehistory of the Upland Southwest 3 Prehistory of upland portions of American South-west; emphasis on Anasazi and Mogollon traditions and relationships to historic Pueblos.

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

542 Prehistory of Alaska and Eastern Siberia 3 Prehistoric cultural developments in the Arctic and sub-Arctic zones of Asia and North America.

543 Plateau Prehistory 3 Archaeology of the inter- Northwest.

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

546 Prehistory of the Desert West 3 Changing desert environments and human adaptations; perspectives for understanding desert prehistory; ancient lifeways of the Desert West.

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

549 World Archaeology 3 Current thought on major transitions (sapienization, advent of Neolithic and of civilization) in human prehistory around the world.

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.


563 Human Races 3 Graduate-level counterpart of Anth 463; additional requirements. Credit not granted for both Anth 463 and 563.

565 Human Evolution 3 Graduate-level counterpart of Anth 465; additional requirements. Credit not granted for both Anth 465 and 565.

566 Human Osteology 3 Graduate-level counterpart of Anth 466; additional requirements. Credit not granted for both Anth 466 and 566.

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

573 Identification of Fauunal Remains 4 (2-6) The relevance of faunal remains in archaeological context; excavating, preserving, and identifying bones commonly encountered in archaeological sites. Field trip required. 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.

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

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

593 Seminar in Communicating Anthropological Research 3 Preparation of original research reports in anthropology; survey of types of professional communication, and of standards and techniques.

600 Special Projects or Independent Study Variable credit.

700 Master’s Research, Thesis, and/or Examination Variable credit.

800 Doctoral Research, Dissertation, and/or Examination Variable credit.

Department of Apparel, Merchandising, and Interior Design


The Department of Apparel, Merchandising, and Interior Design offers undergraduate and graduate programs leading to Bachelor and Master of Arts degrees in Apparel, Merchandising, and Textiles and in Interior Design.

APPAREL, MERCHANDISING, AND TEXTILES

The textile and apparel industry is global, massive, multi-faceted and contributes over $1 billion annually to the economy of the state of Washington. Opportunities for exciting and challenging careers are virtually unlimited for students with a degree in Apparel, Merchandising, and Textiles. Graduates are prepared for careers in the textile and apparel industry through coursework designed to develop both personal and professional skills. Curriculum options are designed to:

- Teach knowledge of textile and apparel industry issues and practices. Students are introduced to the history of the textile and apparel complex, the role of this complex in the national and international economy, and problems facing the industry.
- Develop understanding of the societal, psychological, and cultural factors that influence consumer response to apparel and textile products.
- Provide opportunities for students to learn and practice methods and skills required for developing consumer products, merchandising of those products, and analysis of uses and responses to textile and apparel products by consumers.
- Develop analytical, evaluative and communication skills necessary to succeed in today’s work environment. These include critical thinking and problem solving skills, the ability to work within a team framework, advanced verbal, written and visual communication skills, and leadership skills.

Areas of Study

All apparel, merchandising, and textile majors complete a set of core courses that introduce fundamental concepts and methods. Students then develop an area of expertise by selecting an option specific to their particular interests.
Merchandising
The merchandising option includes courses designed to allow students to develop competence in the planning, buying, and selling of merchandise in either manufacturing or retail organizations.

Product Development
The product development option focuses on the interaction between design and merchandising and provides students with depth in apparel product development. This program also allows students to customize coursework to fit their unique interests and offers an excellent opportunity to integrate apparel, merchandising, and textiles with other disciplines through a variety of potential minors or double majors.

Internships
Students in both options are encouraged to complete a cooperative experience internship in the apparel, merchandising, and textiles industry. Opportunities exist with apparel manufacturing and retail throughout the US.

Degree Program Requirements
Honors students complete Honors Requirements in place of General Education Requirements.
At least 40 of the total hours required for the bachelor’s degree in the merchandising and product development degree programs must be in 300-400-level courses. Courses required in both programs cannot be taken on a pass, fail basis.

MERCHANDISING DEGREE PROGRAM (120 HOURS)

Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 105</td>
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<tr>
<td>Mktg 360</td>
<td>3</td>
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<tr>
<td>Physical [P] Sciences (GER)(^1)</td>
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<tr>
<td>Complete Writing Portfolio</td>
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<tr>
<th>Second Semester</th>
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<tbody>
<tr>
<td>AMT 318</td>
<td>3</td>
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<tr>
<td>AMT 416</td>
<td>3</td>
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<tr>
<td>AMT 420 [M]</td>
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<tr>
<td>AMT 490 and/or AMT Elective(^2)</td>
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Senior Year

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<tr>
<th>First Semester</th>
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<td>AMT 318</td>
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<td>AMT 416</td>
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<td>AMT 420</td>
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<td>AMT 490 or AMT Elective(^2)</td>
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Second Semester | Hours |
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<tr>
<td>AMT 318</td>
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<tr>
<td>Merchandising Elective(^2)</td>
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<tr>
<td>Mktg 470</td>
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<tr>
<td>Tier III Capstone (GER)</td>
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<td>Elective</td>
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PRODUCT DEVELOPMENT DEGREE PROGRAM (120 HOURS)

Freshman Year

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<tr>
<td>F A 103</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
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<tr>
<td>Econ 101 [S] (GER)</td>
<td>3</td>
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<tr>
<td>SpCom 102 [C] (GER)</td>
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<tr>
<td>Merchandising Elective(^2)</td>
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Sophomore Year

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<tr>
<th>First Semester</th>
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<tbody>
<tr>
<td>AMT 215</td>
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<tr>
<td>AMT 216 or 218</td>
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<tr>
<td>Econ 102 [S] (GER)</td>
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<tr>
<td>F A 201 [H] or 202 [H] (GER)</td>
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<tr>
<td>FSHN 130 [B] (GER)</td>
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<tr>
<td>AMT 220</td>
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<tr>
<td>Biological [B] Sciences (GER)(^1)</td>
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Junior Year

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<td>AMT 314</td>
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<tr>
<td>AMT 317</td>
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Minor in Apparel, Merchandising, and Textiles
For a minor in apparel, merchandising, and textiles, the student must complete 18 credits in AMID including AMT 215 and 314; 12 credits from AMT 216, 218, 220, 311, 316, 317, 318, 320, 412, 413, 417, 418, 420, 492. Contact the department office in White Hall, Room 202, for assignment of advisor to assist in selection of AMT courses. Students must earn a C or better to transfer the credit for a required course.

INTERIOR DESIGN
The program is based on a concern for human beings and the creation of interior settings that support human activities and values. Graduates of the Program in Interior Design should be able to think creatively and solve problems in a professional manner. Above all, an interior design education helps the student to develop intellectual curiosity, allowing the graduate to continue to develop as a person and as a designer throughout life.

The interior design program is the only program in the state accredited by the Foundation for Interior Design Education Research (FIDER) and offers a Bachelor of Arts in Interior Design. The program teaches the common body of knowledge related to interior design as recognized by FIDER.

Students complete their final year at WSU Spokane at the Interdisciplinary Design Institute. The institute represents a unique collaboration among the design disciplines with students and faculty from interior design, architecture, construction manage-
ment, and landscape architecture working and learning together in a team-oriented, urban environment. Upon completion of the program students are able to analyze information, evaluate issues, and set priorities while generating creative design solutions for projects of a complex scale. As graduates, their ability to take the initiative and to make critical judgments of their own designs, as well as others, contributes to their future success as professionals.

The successful completion of a portfolio review is required to become a certified major in interior design. The review is set up as an interview process between each student and a faculty panel, and takes place upon completion of a core of specified courses. During the interview the students are expected to explain, answer, defend, and justify their design solutions to the faculty.

**Degree Program Requirements**

**INTERIOR DESIGN (120 HOURS)**

Honors students complete Honors Requirements in place of General Education Requirements.

The interior design program offers a balanced program in interior design with exposure to art, architecture, and humanities. The fourth year is taught at WSU Spokane, and students participate in an interdisciplinary design studio experience. This is an integrated studio with participation from interior design, architecture, construction management, and landscape architecture.

**Freshman Year**

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<th>First Semester</th>
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<tbody>
<tr>
<td>Arch 101</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<td>GenEd 110 [A] (GER)</td>
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<td>Math Proficiency [N] (GER)</td>
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**Second Semester**

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<td>Arch 103</td>
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<tr>
<td>FSHe [B] (GER)</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<td>I D 102</td>
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**Sophomore Year**

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<th>First Semester</th>
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<tr>
<td>AMT 215</td>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Biological Sciences [B]</td>
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<tr>
<td>I D 201</td>
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<td>SpCom [C] (GER)</td>
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<td>I D 202</td>
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<td>I D 203</td>
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<td>I D 211</td>
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<td>I D 215</td>
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**Junior Year**

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<td>I D 311</td>
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<td>I D 321</td>
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<td>I D 322</td>
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<tr>
<td>I D 325</td>
<td>3</td>
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<tr>
<td>Psych 105 [S] (GER)</td>
<td>3</td>
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<tr>
<td>Supportive Electives</td>
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**Description of Courses**

Apparel, Merchandising, and Textiles

**AMT**

108 Introduction to Apparel, Merchandising, and Textiles 3 Overview of textiles/apparel field of study including the apparel and textiles industry, social/psychological aspects of dress, product development.

215 Textile Fundamentals 3 (2-3) Basic textile components including natural and manufactured fibers, yarns, fabric construction, dyes, and finishes. Cooperative course taught by WSU, open to UI students (Hec 215)

216 Apparel Product Development I 3 (0-6) Prereq c/if in AMT 215. Problem solving approach to textile and apparel production; comparison of methods, production methods, and costing for consumer-end use. Cooperative course taught by WSU and UI (FCS 223).


311 Pattern Making 3 (1-6) Development of apparel design from a basic pattern.

**History of Western Dress and Textiles**

3 Historical survey of western dress and textiles from prehistory to mid-1800s.

Cooperative Education Experience V 1-10 Prereq c/if in AMT 491. Full-semester experience with business, industry, or government unit.

280 Textiles and Technology 3 Prereq AMT 108, 215. Current developments in technology as these impact the textile and apparel industry.

412 Product Design 3 (1-6) Prereq AMT 316. Apparel pattern and product line development. Cooperative course taught jointly by WSU and UI (FCS 424).

413 [M] International Trade in Textiles and Apparel 3 Prereq Mktg 360. Economic/social conditions influencing apparel trade and consumption; comparison of production, distribution, and consumption of apparel in the global economy.

417 [M] Social and Psychological Aspects of Dress 3 Prereq 6 hours social science. Role of dress in human interaction; personal/social attributes of dress; research/theory applied to dress and human behavior. Credit not granted for both AMT 417 and 517. Cooperative course taught by WSU, open to UI students (Hec 417).

418 Apparel Merchandising II 3 Issues and trends in contemporary merchandising. Credit not granted for both AMT 418 and 518.

419 Apparel, Merchandising, and Textiles Field Trip 1 May be repeated for credit; cumulative maximum 2 hours. Prereq junior in AMT. Selected issues in apparel production and distribution in connection with organized field trip.

420 [M] History of Contemporary Dress 3 Overview of fashion design and social history from mid-1800s to present.

428 International Experience in Apparel/Textiles Field 3 May be repeated for credit; cumulative maximum 6 hours. Prereq junior standing. Cultural experience integrated with the field of apparel/textiles in centers of apparel production throughout the world. Credit not granted for both AMT 428 and 528.

Department of Apparel, Merchandising, and Interior Design
Department of Apparel, Merchandising, and Interior Design

491 Professional Development Seminar 2 Prereq AMT 490 or c/l. Integrated seminar focusing on issues related to cooperative education experiences.

492 Sketching and Graphic Communication 3 (1-4) Free-hand sketching and computer graphic techniques in fashion illustration; portfolio presentation and development.

495 Instructional Practicum V 1–4 May be repeated for credit; cumulative maximum 4 hours. Prereq by interview only.

498 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours. Current issues, trends, and merchandising strategies in apparel and textiles.

499 Special Problems V 1–4 May be repeated for credit. S, F grading.

512 Apparel Product Development 3 Prereq AMT 594. Integration of consumer demand target market research with the development, application, and testing of prototype products for specific end uses.

517 Social and Psychological Aspects of Dress 3 Graduate-level counterpart of AMT 417; additional requirements. Credit not granted for both AMT 417 and .

518 Apparel Merchandising II 3 Graduate-level counterpart of AMT 418; additional requirements. Credit not granted for both AMT 418 and 518.

519 Research Seminar 2 or 3 Literature review; preparation and review of reports.

520 Advanced Aesthetic Theory in Fashion Design 3 Prereq AMT 420. Framework for in-depth analysis of apparel fashion design provided through exploration of aesthetic and human perception theories within a socio-historic context.

528 International Experience in Apparel/Textiles Field 3 May be repeated for credit; cumulative maximum 6 hours. Graduate-level counterpart of AMT 428; additional requirements. Credit not granted for both AMT 428 and 528.

594 Readings in Apparel, Merchandising, and Textiles 3 Prereq graduate standing. Exploration of current topics through readings in apparel, merchandising, and textiles.

596 Advanced Instructional Practicum 3 Prereq Univ 590 or c/l; graduate standing. Information and direction for graduate student teaching assistants seeking professional development in classroom teaching. S, F grading.

598 Topics in Apparel and Textiles V 1–3 May be repeated for credit; cumulative maximum 8 hours. Current topics in apparel and textile theory and research.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study and/or Examination Variable credit. S, F grading.

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 Basic Environmental Design Studio 3 (0-6) Prereq I D 101. Application of basic design elements to the exploration of space and form. Credit not granted for both I D 102 and I D 200.

200 Environmental Design and Communication Laboratory 4 (1-9) Prereq transfer student. Exploration of 2-D and 3-D design principles, skill development, and introduction to micro-level interior space design. Credit not granted for I D 200 and I D 102 or 201.

201 Perception and Communication 13 3 (0-6) Prereq Arch 101; I D 101, 102, or c/l. Application of design concepts into micro environments; design vocabulary and skill development. Credit not granted for both I D 201 and I D 200.

202 [H] The Built Environment 3 Same as Arch 202.

203 Perception and Communication II 3 (0-6) Prereq Arch 103, I D 201. Development of interior design problem-solving techniques and methods for application in environments of increasing complexity.

211 History of Design I 3 History of design forms, interiors and furnishings from prehistoric to the Industrial Revolution.

215 Materials and Components of Interior Design 3 Characteristics and properties of structural and non-structural interior materials.

311 [M] History of Design II 3 History of design forms, interiors and furnishings from the industrial revolution through the 20th century.

321 Fundamentals of Planning and Design I 4 (1-9) Prereq I D 203. Design investigations of personal space of specified size and complexity for people of varying social, economic, and cultural backgrounds.

322 Interior Programming 1 Prereq I D 203. Introduction to interior programming including space requirement analysis, organizational relationships, and functional diagrams.

325 Interior Building Systems 3 Analysis, planning, and application of interior lighting; introduction to HVAC and plumbing systems.

333 Fundamentals of Planning and Design II 4 (1-9) Prereq I D 321. Design of interior environments for the needs of the private sector.

392 [M] Professional Procedures 3 Business practices and procedures as related to interior design; contract documentation and specification writing.

396 Beginning CAD for Interior Design 3 (0-6) Prereq I D 321 or c/l. Design problem solving using the computer as a tool.

412 Interior Design Theory 2 Prereq I D 333. Theory, principles, and determinants of interior design applied to current practice.

415 Advanced Interior Construction and Detailing 3 Analysis of building construction and detailing which impacts interior space design.

425 Advanced Planning and Design I 5 (10-15) Prereq I D 333. Design problems and presentations emphasizing the bridges between theory and practice.

426 Advanced Planning and Design II 5 (10-15) Prereq I D 425. Interdisciplinary research and design that explores interior design as a vital part of the urban landscape.

428 International Design and Industry Experience 3 Prereq by interview only. Study abroad working with design and industry representatives in Europe. Credit not granted for both I D 428 and 528.

490 Cooperative Education Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. Prereq by interview only. Off-campus cooperative education internship with business, industry, or government unit.

495 Instructional Practicum V 1–4 May be repeated for credit; cumulative maximum 4 hours. Prereq senior standing, by interview only.

498 Special Topics in Interior Design V 1-3 May be repeated for credit; cumulative maximum 6 hours.

499 Special Problems V 1–4 May be repeated for credit; cumulative maximum 4 hours. S, F grading.

525 Interior Design Graduate Studio I 5 (0-10) Prereq I D 426. Graduate studio: application of advanced design theories, philosophies and research methodologies to enhance undergraduate design foundations through interdisciplinary studio experiences.

526 Interior Design Graduate Studio II 5 (0-10) Prereq I D 525. Graduate studio: individual thesis topics and the application of advanced design theories, philosophies, and research methodologies to student's focus topic.

528 International Design and Industry Experience 3 Graduate-level counterpart of I D 428; additional requirements. Credits not granted for both I D 428 and 528.

594 Readings in Interior Design 3 Prereq graduate standing. Exploration of current topics through readings in interior design.

597 Advanced Design Theory 3 (1-6) Prereq I D 425. Environmental and product design theory and development.

598 Topics in Interior Design V 1-3 May be repeated for credit; cumulative maximum 6 hours.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

School of Architecture


The School of Architecture offers courses of study leading to three baccalaureate degrees. These are Bachelor of Architecture, Bachelor of Science in Construction Management, and Bachelor of Science in Architectural Studies.

The School of Architecture also offers a postprofessional course of study leading to a Master of Science in Architecture which emphasizes design related to the environment, technology and culture.

Most states require that an individual intending to become an architect hold an accredited degree. There are two types of degrees that are accredited by the National Architectural Accrediting Board (NAAB): (1) the Bachelor of Architecture, which requires a minimum of five years of study, and (2) the Master of Architecture, which requires a minimum of three years of study following an unrelated
bachelor’s degree or two years following a related pre-professional bachelor’s degree. These professional degrees are structured to educate those who aspire to registration and licensure to practice as architects.

The four-year, pre-professional degree, where offered, is not accredited by NAAB. The pre-professional degree is useful to those wishing a foundation in the field of architecture, as preparation for either continued education in a professional degree program or for employment options in fields related to architecture.

Architects are educated to perform professionally in a wide range of design and construction-related areas and assume important roles in the creation of a better built environment. They may work as independent practitioners, for large corporate firms or for governmental organizations. Architects are required to possess a high level of intuitive, analytical, and technical skills, combined with a deep understanding of human values and needs.

The architecture curriculum is planned so that foreign study and other off-campus programs can be incorporated in the fourth and fifth years. Options include a semester in Europe and a year of study in Spokane at WSU Spokane. In Spokane, students will be studying interdisciplinary issues with construction management, interior design and landscape architecture students. Foreign studies options are available to Pullman and Spokane students.

The construction manager is expected to understand a wide variety of structures that make up the built environment. This awareness includes properties of materials and construction systems and how they are utilized to produce buildings. The student in the program is encouraged to develop an inquisitive and inventive mind in order to deal with new construction methods and management techniques. 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. Construction management students in the third year of study in Spokane at the WSU branch campus.

The School of Architecture is a member of the American Institute of Architects and the Associated Schools of Construction. Student chapters of the American Institute of Architects and the Associated General Contractors provide linkages with their professional counterparts. The Bachelor of Architecture degree program is accredited by the National Architectural Accrediting Board. The Bachelor of Science in Construction Management degree program is accredited by the American Council for Construction Education.

General Requirements
1. Due to limitations of space and faculty, enrollment in second-year courses and certification as a major in architecture or construction management can be granted to only the most qualified students. Prospective applicants for these programs are responsible for familiarizing themselves with all requirements and procedures of the School of Architecture.
2. Students who wish to transfer from another institution may find it possible to take some or all of the first two years elsewhere. See the WSU Transfer Guide and contact the School of Architecture for information.
3. Transfer students and former WSU students must submit an application for admission to the university, a supplemental application to the program, and current academic records to the School of Architecture by the dates listed in this bulletin.
4. Students transferring from another institution into the second or third year of architecture must submit a portfolio in order for the school to evaluate their potential for success in the program. Contact the School of Architecture for portfolio requirements.
5. A student may not normally enroll in 300- or 400-level Arch courses or any Cst M courses without being certified as a major in architecture or construction management.
6. A student may not take courses required by the school on a pass, fail basis.

Degree Program Requirements

BACHELOR OF ARCHITECTURE
(153 HOURS)

Honors students complete Honors Requirements in place of General Education Requirements.

The five-year Bachelor of Architecture program is structured into (1) Pre-Architecture consisting of a beginning year of basic education, (2) the Professional Program consisting of four years of basic professional education, and (3) a concluding year of concentrated study and focus. It is advisable that students interested in pursuing architecture should contact the school in order to ensure that current curriculum information is obtained.

Pre-Architecture

Students who enter WSU and have an interest in architecture should obtain an advisor in the School of Architecture through the Student Advising and Learning Center.

Freshman Year

First Semester
Arch 101 3
Arts & Humanities [H,G] (GER) 3
Communication Proficiency [C,W] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] or 111 [A] (GER) 3

Second Semester
Arch 103 3
Arch 202 3
Cpt S or F A Elective1 3
GenEd 110 [A] or 111 [A] (GER) 3
Math 171 [N] or 206 [N] (GER)2 3

1 6 hours of Cpt S and F A, with at least 2 hours in each.
2 At least 3 hours of Physical Science Electives from the school’s approved list are required for admission into the third year.

Sophomore Year

First Semester
Arch 201 3
Arch 207 3
Arch 220 3
Arch 330 2
Cpt S or F A Elective1 3
Phys 101 [P] or 201 [P] (GER) 4

Second Semester
Arch 203 3
Arch 209 1
Arch 331 2
Biological Sciences [B] (GER) 3 or 4
Physical Sciences [P] (GER)2 3 or 4
Social [S,K] Sciences (GER) 3

Third-Year Admissions and Certification

Years three, four and five constitute the certified professional program in architecture. A maximum of 45 students are admitted into the third year each fall and are certified in architecture. To be considered, a student must submit an application to the School of Architecture during the previous spring semester and have completed 54+ semester credit hours, including all the first- and second-year architectural program requirements. Students not currently enrolled in architectural design courses at WSU must also submit a portfolio. Selection is based on the g.p.a. in the required 54+ semester credit hours. The courses which must be included are the first-year courses listed above plus Arch 201, 203, 207, 209, 220, 330, 331, physics, math and a physical science GER. The remainder of the credits will be made up of GER, computer electives, and fine arts courses required for graduation. The screening is done on two occasions: at the end of the WSU spring semester and midsummer after spring semester or spring quarter grades are received for transfer students. Most of the 45 students will be selected at the end of the spring semester, but some positions will be held open until late summer for transfer students and students deferred from the first screening.
As part of the WSU branch campus system, the school sends 15 fourth- and 15 fifth-year students to Spokane. Upon application to the third year, students are given the option of selecting either Pullman or Spokane for their studies. In the event that there are not enough requests to fill positions at either location, a selection process will be implemented to fill remaining positions. In the third year, acceptance letters will be notified as to whether they will spend their fourth or fifth year in Pullman or Spokane. By accepting admission to the third year, students also accept the conditions of their place of study during the fourth or fifth year.

Application/Portfolio/Notification Deadlines:

April 15 All second-year and third-year applications due.
May 1 Portfolios due from second- and third-year applicants who did not complete Arch 101, 103, 201, 203 at WSU.
June 15 First screening: Applicants will be classified as accepted, deferred to the second screening, or denied. Applicants will be notified by mail.
August 5 Second screening: Applicants will be classified as accepted or denied and will be notified by mail.

NOTE: Students offered positions in the second-year courses or third-year program 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.

Junior Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arch 101</td>
<td>5</td>
</tr>
<tr>
<td>Arch 307</td>
<td>2</td>
</tr>
<tr>
<td>Arch 351</td>
<td>3</td>
</tr>
<tr>
<td>Arch 353</td>
<td>1</td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
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</tbody>
</table>

Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Arch 303</td>
<td>5</td>
</tr>
<tr>
<td>Arch 309</td>
<td>2</td>
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<tr>
<td>Arch 352</td>
<td>3</td>
</tr>
<tr>
<td>Arch 354</td>
<td>1</td>
</tr>
<tr>
<td>Arch 423 [M]</td>
<td>2</td>
</tr>
<tr>
<td>Arch 432</td>
<td>3</td>
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Senior Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arch 401</td>
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<tr>
<td>Arch 407</td>
<td>2</td>
</tr>
<tr>
<td>Arch 433</td>
<td>3</td>
</tr>
<tr>
<td>Arch 434</td>
<td>1</td>
</tr>
<tr>
<td>Arch 461</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural [L,G,K] (GER)</td>
<td>3</td>
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Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Arch 403</td>
<td>5</td>
</tr>
<tr>
<td>Arch 409</td>
<td>2</td>
</tr>
<tr>
<td>Arch Emphasis Electives [M]¹</td>
<td>5</td>
</tr>
<tr>
<td>Tier III Capstone (GER)</td>
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</table>

Fifth Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch 411</td>
<td>6</td>
</tr>
</tbody>
</table>

Arch 415 3
Arch 472 2
Arch Emphasis Electives¹ 3

Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch 413</td>
<td>6</td>
</tr>
<tr>
<td>Arch 473</td>
<td>2</td>
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<tr>
<td>Arch Emphasis Electives¹</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
</tbody>
</table>

¹At least 11 hours of Architectural Emphasis Electives from the school’s approved list are required for graduation, and should include one additional [M] course, for a total of two.

BACHELOR OF SCIENCE IN ARCHITECTURAL STUDIES (125 HOURS) ✔FYDA

Honors students complete Honors Requirements in place of General Education Requirements.

The Bachelor of Science in Architectural Studies is a program primarily for those who want to conclude their studies at the end of four years.

If, after being admitted into the school and spending at least one semester in the professional program, students find that their interests lie in a different but related area or specialty, they may choose to move into the Architectural Studies Program. It can be used to help prepare a student to work in related fields such as technology, management, or community or regional development. It may be used as a foundation for graduate work in these areas.

It must be clearly understood that this program does not necessarily prepare a student for admission into the fifth year of the professional program nor prepare graduates for the Architect’s License Examination.

All students desiring to obtain the architectural studies degree must certify as majors in the professional program. There are two methods by which this degree may be obtained. Please see below:

Program Requirements:

1. Completion of the pre-architecture requirements and admission into the professional program.
2. a. Completion of all required courses in the second, third, and fourth years of the professional architectural program, or
   b. Arch 301, 303, 307, 309 and completion of at least 25 additional 300-400-level credit hours in or supporting an area of emphasis. Specific schedule of studies must be approved by the school.

BACHELOR OF SCIENCE IN CONSTRUCTION MANAGEMENT (160 HOURS) ✔FYDA (FIVE YEAR AGREEMENT)

Honors students complete Honors Requirements in place of General Education Requirements.

Construction management is a five-year program structured into two years of preconstruction management, two years of construction management, and one year of focused specialized study. Construction management students are required to spend their fifth and final year at the WSU branch campus in Spokane to enhance opportunities for specialized study and increase interaction with professionals in the construction industry.

The degree of Bachelor of Science in Construction Management is for those students who wish to work in the profession of construction management or in a management capacity in other facets of the construction industry.

Upon completion of the Preconstruction Management Program requirements, or their equivalent for transfer students, application must be made for certification into the Construction Management Program. It should be noted that the freshman class of 1997 will be required to purchase a computer after acceptance to the third year. Purchase should be made in conjunction with school requirements. It is the policy of the school to provide support for software and networks.

PRECONSTRUCTION MANAGEMENT

Freshman Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch 101</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>
<td>3</td>
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<tr>
<td>Geol 101 [P] (GER)</td>
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<tr>
<td>Intercultural [L,G,K] (GER)</td>
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Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arch 230</td>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>3</td>
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<tr>
<td>Econ 102 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
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</tr>
<tr>
<td>Math 171 [M] (GER)</td>
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Sophomore Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Acctg 231</td>
<td>3</td>
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<tr>
<td>Cpt S 105</td>
<td>4</td>
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<tr>
<td>Cpt S 153</td>
<td>2</td>
</tr>
<tr>
<td>Math 201</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
</tbody>
</table>

Certification Requirements:
The School of Architecture 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 takes place between the second- and third-year level when certification is granted and enrollment to 300- and 400-level Arch and Cst M courses is allowed. Note that this limitation is imposed because of limited space, equipment and faculty resources. Students may transfer to the school during the two-year preconstruction program or apply directly for third-year certification.

Third-Year Admission:

Every year a maximum of 25 students will be certified and allowed to continue to third year after they successfully pass through the screening process which will take place at the termination of spring semester after grades are received.

The Construction Management Program Coordinator reviews all applications and makes
recommendation to the School of Architecture’s Ad-
missions and Academic Affairs Committee regarding
applicants. Selection will be made on or about July
15; all applicants will be notified of their status by
letter mailed from the School of Architecture as soon
as possible thereafter. Successful applicants will also
be certified into the Construction Management Pro-
gram as soon as possible thereafter.

Course and G.P.A. Requirements for Screening:
Because the School of Architecture receives more
applications from qualified students than can be ac-
commodated, screening for entry into the third year
is based on the applicant fulfilling the minimum re-
quirements listed and the applicant’s overall g.p.a.

To be considered for admission, an applicant must:
1. Qualify for admission into Washington State
University.
2. Complete the first two years as listed herein
under Preconstruction Management.
3. Earn a grade of C or better in Acctg 230, 231,
Arch 101, B Law 210, Cpt S 105, 153, Econ 101,
102, Geol 101, Math 171, 201; Phys 101 or 201.
4. Complete and submit, by May 1, an applica-
tion to the Construction Management Program.

Applications Requirements and Deadlines:
Applications are due May 1 for admission and certi-
fication into the program at the beginning of the fall
semester. Grade records for transfer students for the
semester or quarter must be available to the Con-
struction Management Coordinator before July 1.

CONSTRUCTION MANAGEMENT DEGREE
PROGRAM

Junior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Arch 330</td>
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</tr>
<tr>
<td>Arch 351</td>
<td>3</td>
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<tr>
<td>C E 301</td>
<td>3</td>
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<tr>
<td>R E 305</td>
<td>3</td>
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<tr>
<td>Approved Elective</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
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<tr>
<td>Complete Writing Portfolio</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Arch 331</td>
<td>2</td>
</tr>
<tr>
<td>Arch 352</td>
<td>3</td>
</tr>
<tr>
<td>Arch 432</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 201</td>
<td>2</td>
</tr>
<tr>
<td>Fin 325</td>
<td>2</td>
</tr>
<tr>
<td>Approved Elective</td>
<td>3</td>
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<tr>
<td>Senior Year</td>
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<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Arch 332</td>
<td>3</td>
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<tr>
<td>Arch 433</td>
<td>3</td>
</tr>
<tr>
<td>Arch 461</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 470</td>
<td>3</td>
</tr>
<tr>
<td>Tier III Capstone (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Approved Elective</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Arch 462</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 442 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 455</td>
<td>3</td>
</tr>
<tr>
<td>Engl 201 [W], 301 [W], or 402 [W] (GER)</td>
<td>3</td>
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<tr>
<td>Approved Elective</td>
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Fifth Year (WSU Spokane)

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Cst M 451 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 453</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 456</td>
<td>4</td>
</tr>
<tr>
<td>Approved Fifth Year Electives</td>
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<tr>
<td>Electives</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Cst M 452</td>
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<tr>
<td>Cst M 457</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 495</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 499</td>
<td>3</td>
</tr>
</tbody>
</table>

1 Approved Electives include: B Law 410, 411, 450; Dec S 215, 340; Econ 301, 450; Ins 320; Mgt 301; Mkrg 360; Psych 306; R E 407, 408, 409. Consult your advisor.

2 3 hours to be selected from Arch 434, 451, 480, 497.

Description of Courses

Architecture

Arch 101 Graphics Communication 3 (0-6) Drawing to perceive three-dimensional space; freehand (ar-
chitectural) drawing, drafting, isometric and orthographic drawing; perspective, shades and
shadows, lettering, and rendering techniques.

103 Visual Design 3 (0-6) Prereq Arch 101. Two- and three-dimensional design and spatial studies; abstract studies in form, color and texture; intro-
duction to architectural design processes.

120 Innovation in Design 2 Same as M E 120.

201 Architectural Design I 3 (0-6) Prereq Arch 103, c/f in Arch 207. Introduction to architectural design focusing on cultural/symbolic issues.

202 [H] The Built Environment 3 Design and planning of the built environment: products, inte-
riors, structures, landscapes, cities, regions, earth; human-environmental interactions, sustainability, and quality.

203 Architectural Design II 3 (0-6) Prereq Arch 201, c/f in Arch 209. Introduction to archi-
tectural design as influenced by building tech-
ology, building systems and craft.

207 Design Theory I 1 Prereq c/f in Arch 201. In-
truction to design theory relating to cul-
tural/symbolic issues.

209 Design Theory II 1 Prereq c/f in Arch 203. De-
sign theory relating to building technology, sys-
tems and crafts which influence design deci-
sions.

220 [H] Architectural History I 3 Historic develop-
ment of world architecture from prehistory to late medieval; social, technical and scientific
influences.

221 [H] Architectural History II 3 Development of American architecture; cave dwellings, na-
tive American architecture, colonial styles to con-
temporary architecture; effects of Euro-
pean styles upon America.

301 Architectural Design III 5 (0-10) Prereq cer-
tified Arch major; c/f in Arch 307. Introduction of architectural design focusing on environ-
mental and social issues.

303 Architectural Design IV 5 (0-10) Prereq Arch
301; c/f in Arch 309. Continuation of study of architectural design/form as influenced by cul-
tural, spiritual and symbolic issues.

307 Design Theory III 2 Prereq certified Arch ma-
jor; c/f in Arch 301. Introduction to design theory relating to environmental and social is-

309 Design Theory IV 2 Prereq c/f in Arch 303. Continuation of design theory relating to cul-
tural/symbolic issues which influence design decisions.

324 [M] Renaissance to Baroque Architecture 2 Western architecture from the Renaissance to Baroque to pioneers of modern architecture.

330 Materials and Construction I 2 Wood and ma-
sonry materials and construction systems; tim-
ber frame and bearing wall construction; other uses of wood and masonry.

331 Materials and Construction II 2 Prereq Arch 330. Continuation of Arch 330. Concrete and metal materials and construction systems; foundation, framing and roof systems.

332 Materials and Construction III 3 (2-3) Prereq
major in Arch or Cst M. Theory and application of various construction systems and material applications.

341 Computers in Architecture 2 (1-3) Prereq cer-
tified major in Arch or Cst M. Introduction to computers, terminology, and software applica-
tions, applicable to the field of architecture.

351 Architectural Structures I 3 Prereq major in Arch or Cst M. Introduction to statics and me-
chanics; analysis and design of statically determinate architectural structures using tim-
ber, steel, and reinforced concrete systems.

352 Architectural Structures II 3 Prereq Arch 351. Continuation of Arch 351.

353 Architectural Structures Lab I 1 (0-2) Prereq Arch 351 or c/f. Design principles of architec-
tural structures systems; available systems for spanning and enclosing architectural space.

354 Architectural Structures Lab II 1 (0-2) Prereq Arch 352 or c/f. Continuation of Arch 353.

386 Reading Examination V 1-3 Prereq major in Arch or Cst M. Examination of summer read-
ing from lists prepared by the school.

390 Topics - Study Abroad 3 Special topics in archi-
itecture taught in NCSA study abroad pro-
grams.

401 Architectural Design V 5 (0-10) Prereq Arch 303; c/f in Arch 407. Advanced architectural design focusing on technology, systems and crafts of buildings.

403 Architectural Design VI 5 (0-10) Prereq Arch 401; c/f in Arch 409. Advanced study of archi-
tectural design/form as influenced by social
and environmental issues applied to large-
scale developments.

407 Design Theory V 2 Prereq c/f in Arch 401. Ad-
vanced design theory relating to systems, technology and crafts of buildings.

409 Design Theory VI 2 Prereq c/f in Arch 403. Advanced design theory relating to social and environmental issues which influence housing design.

411 Architectural Design VII 6 (0-12) Prereq Arch 403. Comprehensive building design incor-
porating programming, space planning, interiors, site planning and landscaping.

413 Architectural Design Thesis 6 (0-12) Prereq Arch 411, 415. In-depth study of architectural design problems; thesis relating to architec-
tural project selected by student and approved by faculty.
415 Programming and Decision Theory 3 Process of data collection, analysis and synthesis including cost management, organization, preparation and presentation of a program.

423 [M] Twentieth Century Architecture 2 Prereq Arch 324. History from the modern movement to today; principles of architectural design demonstrated in the work of 20th century architects.

424 [M] Historic Preservation 2 Prereq major in Arch or Cst M. Theory and practice of architectural and urban conservation; description, evaluation and survey; restoration, rehabilitation, adaptive re-use; historic districts; benefits and incentives.

425 Architectural Theory I 2 Architectural criticism and theory as viewed from contemporary and historical precedents.

426 Architectural Theory II 2 Continuation and expansion of Arch 425 including applications to design concepts and methodologies.

427 Site and Landscape Design 3 (1-4) Prereq Arch 203. Exploration of issues and development of skills relative to site and landscape design.

432 Environmental Control of Buildings I 3 (2-2) Mechanical systems for buildings; building heating, ventilating, and air conditioning systems, heat flow concepts.

433 Environmental Control of Buildings II 3 (2-2) Prereq Arch 432. Water supply, drainage, electrical and lighting systems for buildings.

434 Acoustics 1 Prereq major in Arch or Cst M. Sound theory, control, acoustics, and reinforcement systems as applied to architectural problems.


438 Energy, Design and Computers 2 (1-2) or 3 (1-4) Prereq Arch 303, 423. Design theory and methods of energy and resource conservation in architecture through the use of daylight modeling and computers.

439 Lighting Design 3 Prereq Arch 432. Engineering and aesthetics of lighting design for buildings; case studies, field trip, studio design exercises.


446 Architectural Animation 3 (1-4) Prereq certified Arch major, Cpt S 150 or 205. Introduction to computer animation production, building simulation and related CAD modeling techniques.

451 Computer-aided Design I 2 (1-2) Prereq basic computer course. Science and art of architectural computer-aided design for design discipline students.

452 Computer-aided Design II 2 (1-2) Prereq basic computer course. Continuation of Arch 451.

456 Field Sketching/Journal Keeping 3 (2-2) Prereq junior standing. Field-sketching/journal-keeping strategies to facilitate investigation and comprehension of the built environment.

461 Architectural Structures III 3 Prereq Arch 352. Wind and seismic loads on architectural structures; high-rise structure systems; reinforced masonry systems, earth-retaining structures and foundation systems.

462 Architectural Structures IV 3 Prereq Arch 352. Deflection theory; analysis of statically indeterminate architectural structure systems; case studies in preliminary architectural engineering for buildings.

472 Construction Communications/Codes 2 Prereq major in Arch. Codes; specifications, project manuals, and contract documents.

473 Professional Practice 2 Prereq Arch 472. Architect licensing process; techniques for and rationale of marketing architectural services; office organization and business methods applied to architecture.

480 Architecture Internship V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq major in Arch. Advanced study in architectural design. Cooperative course taught by WSU, open to UI students (Arch 490).

490 Seminar in Architectural Design V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq major in Arch. Advanced study in architectural history.

493 Seminar in Environmental Control V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq major in Arch. 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 Arch 342. 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 Arch 461, Cst M 470. Methods and procedures for masonry construction, steel construction, wood and timber construction, high-rise construction; equipment, labor, and safety requirements.

500 Seminar in Construction Process Management V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq senior in Arch. Advanced study in construction management practice.

501 Research Methods 2 Research methods in architecture and design disciplines; theory and methodology of research including historical survey, experimental systems and design process.

502 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.

540 History and Theory of Design Issues in Architecture 3 Advanced study of history and theory of architecture relating to environmental, cultural and technological design issues.

546 Computer Animation 3 May be repeated for credit; cumulative maximum 9 hours. Prereq Arch 446 or Cpt S 446; by interview only. Advanced computer animation techniques; advanced specialization in building/design simulation, dynamic modeling and visualization, engineering animation.

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.

580 Architecture Internship V1-16 May be repeated for credit. Prereq graduate student in Arch. Placement in an approved industrial, professional, or governmental situation for specialized or general experience.

600 Special Projects or Independent Study Variable credit. S, F grading.


Description of Courses

Construction Management

Cst M

201 Introduction to Construction 2 (1-3) Prereq major in Cst M. Construction industry overview; reading plans and specifications; analysis of the Business Roundtable’s Construction Industry Cost Effectiveness project.

442 [M] Theory of Urban Design and Development 3 Same as Arch 442.


452 Construction Practice Management 3 Business/management practices for a construction firm; building construction project management.

453 Construction Communications/Law/Codes 3 (2-3) Construction communications and law overview; analysis and interpretation of contract documents and the uniform building code.

455 Construction Scheduling 3 (2-3) Precedence and arrow networking techniques for construction; fundamentals of scheduling computations, time-cost adjustments, resource leveling; computer scheduling software overview.

456 Methods and Procedures of Construction I 4 Prereq Arch 461, Cst M 470. Methods and procedures for site work, foundation construction, concrete construction; equipment, labor, and safety requirements.

457 Methods and Procedures of Construction II 4 Methods and procedures for masonry construction, steel construction, wood and timber construction, high-rise construction; equipment, labor, and safety requirements.

470 Estimating I 3 (2-3) Prereq Arch 331, Cst M 201. Cost estimating related to building general construction work; methods and techniques applicable to quantity survey, pricing detailed estimates, and bid preparation.

471 Estimating II 3 (1-6) Computerized construction cost estimating and cost management; personal computer software applications spreadsheet, file management, database, and custom-type programs.
495 Seminar in Construction Management V 1-4
May be repeated for credit; cumulative maximum 4 hours. Advanced study in construction practice management.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Asia Program

Professor and Program Director, M. Tolmacheva (History, Middle East); Professors, V. N. Bhatia (President’s Office, South Asia), A. Chang (Chinese, Japanese), T. L. Kennedy (History, East Asia), T. Tsuturani (Political Science, East Asia); Associate Professors, F. W. Blackwell (History, South Asia), T. Lumpkin (Crop and Soil Sciences, East and South Asia), L. Stone (Anthropology, South Asia); Assistant Professors, N. Kawamura (History, East Asia), M. Myers (Philosophy and Religion, South Asia, East Asia), D. Sonnenfeld, (Sociology, Southeast Asia), R. Sun (History, East Asia); Librarians, R. Kwon (East Asia), A. M. Spitzer (South Asia).

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.

The flexibility of the program affords both an area concentration and a departmental specialization. The program offers the degree of Bachelor of Arts in Asian Studies.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

A minimum of 40 hours (46 hours for comprehensive option) of courses on Asia and in related fields including 16 hours of an appropriate language.

ASIA DEGREE PROGRAM (120 HOURS)

Freshman Year

First Semester

<table>
<thead>
<tr>
<th>Course</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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<td>Math Proficiency [N] (GER)</td>
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<td>Science Elective①</td>
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<td>Tier I Science [Q] (GER)①</td>
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Second Semester

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<tr>
<td>Asia 275</td>
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<tr>
<td>Biological Sciences [B] (GER)</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<td>Social Sciences [S,K] (GER)</td>
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Sophomore Year

First Semester

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<th>Course</th>
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<tbody>
<tr>
<td>Asia 270</td>
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<tr>
<td>Asia 272</td>
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<tr>
<td>Foreign Language Elective②</td>
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<td>Physical Sciences [P] (GER)</td>
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Second Semester

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<td>Foreign Language Elective②</td>
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<td>Major Coursework③</td>
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<tr>
<td>Complete Writing Portfolio</td>
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Junior Year

First Semester

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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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Second Semester

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<tr>
<td>Foreign Language Elective②</td>
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<td>Major Coursework③</td>
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Senior Year

First Semester

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<th>Course</th>
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<tr>
<td>Intercultural [I.G,K] (GER)</td>
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<td>Major Coursework or Electives④</td>
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<tr>
<td>Electives④</td>
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Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tr>
<td>Tier III Capstone (GER)</td>
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<tr>
<td>Electives④</td>
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</table>

① Students may substitute one 4-credit Tier I Science for both the 3-credit Tier I Science and 1-credit Science Elective.
② 16 hours of an appropriate language are required.
③ A minimum of 40 hours (46 for comprehensive option) in one of the following options, including two Writing in the Major [M] courses:
   - China: Asia 270, 272, 275, 315 [M], 373, 374, 476, Asia electives.
   - Japan: Asia 270, 272, 275, 315 [M], 374, 436, 477, Asia electives.
   - South Asia: Asia 270, 272, 273, 275, 314 [M], 370, 470 [M], Asia electives.
   - Comprehensive: Asia 270, 272, 273, 275, 373, 436, 470 [M], 472 [M], 476.
   - Students should consult their advisor to determine when courses are offered.
④ Or relevant 300-400-level courses not mentioned may which be counted toward a major or minor if approved by the Director of the Asia Program.

MINOR:

A minor in Asian Studies requires 23 hours, including 8 hours of an appropriate language.

China: Asia 275, 315, 373, 374, 476.
Japan: Asia 275, 315, 374, 436, 477.
South Asia: Asia 270, 273, 314, 370, 470.

All courses are crosslisted in the Asia Program.

Program in Astronomy

Professor and Program Director, J. H. Lutz; Assistant Professor, J. Brown.

Astronomy is the study of celestial bodies including the sun, planets, satellites, stars, and galaxies. The various courses offered in astronomy are intended to provide background for both liberal arts and science majors. The astronomy faculty are part of the Department of Pure and Applied Mathematics. The WSU Planetarium and the Jewett Observatory are used as instructional aids in the astronomy courses. Opportunities are available for students to collaborate with astronomy faculty to do research projects with the 3.5 m Apache Point Telescope which can be operated remotely from the WSU Pullman campus.

A minor in astronomy requires 16 hours as follows: a minimum of 10 hours 300-400-level astronomy courses which must include Astr 345 and at least 1 hour of Astr 499; 6 hours from Cpt S 330; Hist 381; Math 360, 440, 441, 443, 444, 448; Phys 320, 341, 342, 443, 450.

Description of Courses

Astronomy

Astr 135 (250) [P] Descriptive Astronomy 3 Physical characteristics and motions of the bodies of the solar system, stars, nebulae, and galaxies. Credit not granted for both Astr 135 and 345.
150 [Q] Science and the Universe 3 Basic science background, including physical concepts, scientific reasoning, data analysis, and astronomical applications.

345 [P] Principles of Astronomy 3 Prereq Phys 102 or 202. Planets, the sun, stars, and galaxies; current topics in astrophysics and planetary research. Credit not granted for both Astr 135 and 345.


435 Astronomy and Astrophysics 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Math 172. Advanced topics in modern astronomy and astrophysics. Cooperative course taught jointly by WSU and UI (Phys 485).

450 [P] The Search for Extraterrestrial Life 3 Prereq completion of one Tier I and three Tier II courses in appropriate area of coherence. The astronomical, biological and social issues involved in the search for extraterrestrial life.

499 Special Problems V 1-4 May be repeated for credit; cumulative maximum 9 hours. Prereq Math 315, Phys 202. Problems of current astrophysical interest in the areas of stellar atmospheres, stellar interiors, gaseous nebulae, the interstellar medium and galaxies.

600 Special Projects or Independent Study Variable credit. S, F grading.

### Department of Biochemistry and Biophysics


Biochemistry and biophysics are interdisciplinary sciences that involve the application of methods and theories of chemistry and physics to the study of biological phenomena. A 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.

Members of the department are all active in research and have wide-ranging interests that include gene regulation, molecular biology in animals, plants and microorganisms, enzymatic reaction mechanisms, signal transduction, protein export, DNA repair, reproductive biology, protein-DNA interactions, plant biochemistry, and structural biology including NMR spectroscopy, x-ray crystallography and computer simulations.

The department and graduate programs offer courses of study leading to the degrees of Bachelor of Science in Biochemistry, Master of Science in Biochemistry, and Doctor of Philosophy.

The undergraduate minor in biochemistry requires a one-semester analytical chemistry course with laboratory and two semesters of organic chemistry with laboratories each semester, BC/BP 364 plus 6 additional hours of biochemistry/biophysics, 2 hours of which must include laboratory course. BC/BP 463 plus 464 may be used to satisfy the requirement for 10 hours of biochemistry/biophysics.

Along with the graduate faculty of genetics and cell biology and microbiology, the department administers a minor in molecular biology, listed separately in this catalog.

### Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

The department offers three program options leading to the Bachelor of Science in Biochemistry, Master of Science in Biochemistry, and Doctor of Philosophy.

- **First Semester** Hours
  - Bio S 103 [B] (GER) 4
  - Chem 105 [P] (GER) 4
  - GenEd 110 [A] (GER) 3
  - Math 171 [N] (GER) 4

- **Second Semester** Hours
  - Bio S 104 [B] (GER) 4
  - Chem 106 [P] (GER) 4
  - GenEd 111 [A] (GER) 3
  - Math 172 4

- **Sophomore Year** Hours
  - Arts & Humanities [H,G] (GER) 3
  - Bio S 104 [B] (GER) 4
  - Chem 106 [P] (GER) 4
  - GenEd 111 [A] (GER) 3
  - Math 140 4

### General Biochemistry Degree Program (120 Hours) 

Freshman Year

- **First Semester** Hours
  - Bio S 103 [B] (GER) 4
  - Chem 105 [P] (GER) 4
  - GenEd 110 [A] (GER) 3
  - Math 171 4

- **Second Semester** Hours
  - Bio S 104 [B] (GER) 4
  - Chem 106 [P] (GER) 4
  - GenEd 111 [A] (GER) 3
  - Math 140 4

### Sophomore Year

- **First Semester** Hours
  - Arts & Humanities [H,G] (GER) 3
  - Bio S 104 [B] (GER) 4
  - Chem 106 [P] (GER) 4
  - GenEd 111 [A] (GER) 3
  - Math 140 4

- **Second Semester** Hours
  - Arts & Humanities [H,G] (GER) 3
  - Chem 340 3
  - Chem 341 3
  - Phys 201 [P] (GER) 4

### Junior Year

- **First Semester** Hours
  - Arts & Humanities [H,G] (GER) 3
  - Bio S 104 [B] (GER) 4
  - Chem 340 3
  - Chem 341 3
  - GenEd 301 3
  - Phys 202 [P] (GER) 4
  - Social Sciences [S,K] (GER) 3

- **Second Semester** Hours
  - Arts & Humanities [H,G] (GER) 3
  - BC/BP 398 [M] 4
  - Complete Writing Portfolio 1
### MOLECULAR BIOPHYSICS DEGREE PROGRAM (123 HOURS)

#### FYDA

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<thead>
<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>GenCB 450</td>
<td>Molecular Biophysics</td>
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<tr>
<td>Micro 301</td>
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#### Senior Year

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<tr>
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<tbody>
<tr>
<td>BC/BP 473</td>
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<tr>
<td>BC/BP 495 or 499</td>
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<td>Math 315</td>
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#### Second Semester Hours

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<tr>
<td>BC/BP 378</td>
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<tr>
<td>BC/BP 463</td>
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<td>Micro 464</td>
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<td>Tier II Capstone (GER)</td>
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#### MOLECULAR BIOPHYSICS DEGREE PROGRAM (123 HOURS)

### Description of Courses

#### Biochemistry/Biophysics

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<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BC/BP 312</td>
<td>[M] Cell and Molecular Laboratory 2</td>
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#### First Semester Hours

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<tbody>
<tr>
<td>Bio S 103 [B] (GER)</td>
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#### Second Semester Hours

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<tr>
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<td>Math 172</td>
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#### Sophomore Year

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<tbody>
<tr>
<td>Chem 220, 222</td>
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<td>Chem 340, 341</td>
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<td>Engl 101 [W] (GER)</td>
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<tr>
<td>Phys 201 [P] (GER)</td>
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#### Junior Year

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<tr>
<td>BC/BP 364</td>
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<td>BC/BP 398 [M]</td>
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<td>Math 273</td>
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<td>Phys 303</td>
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#### Second Semester Hours

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#### Senior Year

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<tr>
<td>BC/BP 378</td>
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<td>3</td>
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<tr>
<td>BC/BP 463</td>
<td></td>
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#### 364 Introductory Biochemistry

- **Prerequisites:** BC/BP 106; Chem 240 or 340. Modern biochemistry for undergraduates in the biological sciences. Cooperative course taught by WSU, open to UI students (Biochem 380).

#### 366 Introductory Biochemistry Laboratory

- **Prerequisites:** (0-3) Prereq BC/BP 364 or c//. Basic biochemical techniques.

#### 378 Introduction to Molecular Biology Computer Techniques

- **Prerequisites:** BC/BP 364, GenCB 301. Computer analysis of protein and nucleic acid sequences, molecular visualization and modeling, sequence and structure databases.

#### 398 [M] Undergraduate Seminar

- **Prerequisites:** Prereq junior standing. Opportunities in biochemistry, biophysics and molecular biology.

#### 463 General Biochemistry

- **Prerequisites:** Prereq Chem 220, 222, 342; junior standing. Protein structure and function; enzyme catalysis; nucleic acid structure and function; biochemical methodology; molecular biology.

#### 464 General Biochemistry

- **Prerequisites:** Prereq BC/BP 364, GenCB 301. Metabolism of carbohydrates, proteins, fats, bioenergetics; photosynthesis; control of metabolic processes.

#### 472 Principles of Biophysical Chemistry

- **Prerequisites:** Prereq BC/BP 364; 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.

#### 473 Molecular Biophysics

- **Prerequisites:** BC/BP 364, GenCB 301. Computer analysis of protein and nucleic acid sequences, molecular visualization and modeling, protein folding. Cooperative course taught by WSU, open to UI students (MMBB 578).

#### 495 Directed Research V 1

- **Prerequisites:** (0-3) Prereq BC/BP 472 or c//. Laboratory experiments illustrating physical chemical principles with particular application to life sciences.

#### 496 [M] Directed Research and Writing

- **Prerequisites:** Prereq BC/BP 364 or c//. Introduction to laboratory research; written reports required.

#### 499 Special Problems

- **Prerequisites:** May be repeated for credit. S, F grading.

#### 561 Biochemical Signaling in Plants, Animals and Microorganisms

- **Prerequisites:** New research on intracellular and extracellular biochemical signaling, including communication in plants and hormone action in animals.

#### 563 General Biochemistry

- **Prerequisites:** Prereq Chem 220, 222, 342. Structure and function of proteins and nucleic acids; fundamental principles of enzymology; chemical aspects of molecular biology. Cooperative course taught by WSU, open to UI students (MMBB 541).

#### 564 General Biochemistry

- **Prerequisites:** Prereq BC/BP 563. Carbohydrate, amino acid and lipid metabolism and its control; biochemistry of vitamins; bioenergetics; photosynthesis; nitrogen fixation. Cooperative course taught by WSU, open to UI students (MMBB 542).

#### 565 Molecular Biology

- **Prerequisites:** Prereq BC/BP 563. Survey of recombinant DNA methods; DNA sequencing; site-directed mutagenesis; and methods for analyzing gene structure and function; transposable elements.

#### 566 Molecular Biology

- **Prerequisites:** Prereq GenCB 566. Enzyme mechanisms; protein structure and function; protein evolution.

#### 567 Proteins and Enzymes

- **Prerequisites:** Prereq BC/BP 563. Modern laboratory technique in the sequencing of nucleic acids.

#### 570 Biological Membranes

- **Prerequisites:** Prereq BC/BP 564. Structure and function of biological membranes; composition, transport, receptors, and sensory phenomena.

#### 572 Organic Chemistry

- **Prerequisites:** Prereq BC/BP 567. Physical organic chemistry. Techniques for the study of biological structure and function; spectroscopy, magnetic resonance, diffusion, and sedimentation, electron microscopy, diffraction and scattering.

#### 574 Protein Biotechnology

- **Prerequisites:** Biotechnology related to the isolation, modification and large scale commercial production, patenting and marketing of useful recombinant proteins and products.

#### 576 Molecular Biology Techniques I

- **Prerequisites:** Prereq BC/BP 564 or c//. Modern laboratory techniques in the sequencing of nucleic acids.

#### 577 Molecular Biology Techniques II

- **Prerequisites:** Prereq BC/BP 564 or c//. Modern laboratory techniques in the use of plasmids as cloning vehicles.

#### 578 Molecular Biology Computer Techniques

- **Prerequisites:** Prereq BC/BP 564 or 563; GenCB 301. Computer analysis of protein and nucleic acid sequences, molecular visualization and modeling, protein folding. Cooperative course taught by WSU, open to UI students (MMBB 578).

#### 587 Advanced Topics in Plant Biochemistry

- **Prerequisites:** Prereq BC/BP 564; basic botany. Biochemistry unique to plants; new research advances.

#### 591 Biochemistry Seminar

- **Prerequisites:** 1 or 2 May be repeated for credit; cumulative maximum 4 hours. Required of all graduate students in biochemistry.

#### 592 Advanced Topics in Cell Biology

- **Prerequisites:** Prereq BC/BP 564. May be repeated for credit; cumulative maximum 4 hours. Written and oral presentation of an area of biochemistry.

#### 600 Special Projects or Independent Study

- **Prerequisites:** Variable credit. S, F grading.

#### 700 Master’s Research, Thesis, and/or Examination

- **Prerequisites:** Variable credit. S, F grading.
Department of Biological Systems Engineering


BIOLOGICAL SYSTEMS ENGINEERING

Biological systems engineers design technological solutions to problems in systems that involve plants, humans and other animals, micro-organisms and biological materials. They produce creative and effective solutions to problems facing the environment, our food supply, and all types of living organisms. Using their technical knowledge and the engineering design process, they are able to design systems that improve the well-being of people, plants, animals and other living organisms and create new products through efficient, yet environmentally sound, use of our biological resources.

The biological systems engineering curriculum prepares graduates who are uniquely qualified to apply engineering methods to biologically based systems. The schedule of studies provides students an early introduction to biological systems engineering, including design, and continues to expand that understanding and design experience throughout the four years of study. Students gain computer experience from the first semester and build capabilities for biological system analysis in each subsequent year. The BSysE 110, 210, 310, 311, 411 sequence provides a central core in design that is coupled to the engineering, biological, chemical and physical sciences, communications, societal awareness, professionalism and ethics. This curriculum is unique in that it yields a professional engineering baccalaureate degree that can satisfy pre-veterinary, pre-medical and pre-dentistry requirements.

Students are offered flexibility in selection of an area of emphasis within biological systems engineering. Areas of emphasis currently available are (1) water, soil and environmental resource engineering; (2) food engineering; (3) biomedical engineering; and (4) agricultural engineering. Other emphasis areas may be defined to fit a student’s interest (e.g., bio-material processing, plant and animal environmental systems). Advanced engineering design electives build on the background in biological systems engineering and related technical biological science electives to provide depth in the selected area of emphasis.

This professional curriculum, leading to the Bachelor of Science degree in Biological Systems Engineering, is accredited by the Accreditation Board for Engineering and Technology. Enrollment in the 300-400-level curriculum is restricted to certified majors. Requirements for certification are available from the department.

The Department of Biological Systems Engineering also participates in the College of Engineering and Architecture’s programs leading to the degrees of Master of Science in Engineering and Doctor of Philosophy (Engineering Science).

Degree Program Requirements

Honor students complete Honors Requirements in place of General Education Requirements.

The Bachelor of Science degree in Biological Systems Engineering requires a minimum of 128 semester hours. At least 45 of the total hours required for the bachelor’s degree in this program must be 300-400-level courses.

BIOLOGICAL SYSTEMS ENGINEERING

DEGREE PROGRAM (128 HOURS)

Freshman Year

First Semester

BSysE 110 2
Chem 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math 171 [N] (GER) 4

Second Semester

Bio S 103 [B] (GER) 4
Chem 106 [P] (GER) 4
Cpt S 203 2
GenEd 111 [A] (GER) 3
Math 172 4

Sophomore Year

First Semester

BSysE 210 3
C E 213 4
Econ 101 [S] or 102 [S] (GER) 3
Math 273 2
Phys 201 [P] (GER) 4

Second Semester

Arts & Humanities [H,G] (GER) 3
Bio S 104 [B] (GER) 4
C E 214 3
Chem 240, or 340 and 341 4 or 5
Math 315 3

Junior Year

First Semester

BC/BCP 364 or SoilS 421 3
Ch E 310 3
C E 315 or Ch E 332 3
Phys 202 [P] (GER) 4
Technical Biological Science Elective 3
Complete Writing Portfolio

Second Semester

BSysE 310 3
BSysE 311 [M] 3
Ch E 301 or M E 301 3
E E 304 2
Stat 412 3
Technical Biological Science or Engineering Elective 3

Senior Year

First Semester

BSysE 411 or BSysE 420 3
BSysE 441 3
BSysE 481 [M] 3
Engineering Design Elective 4
Technical Biological Science Elective 3

Second Semester

Engl 402 [W] (GER) 3
Engineering Design Electives 4
Intercultural [J,G,K] (GER) 3
Tier III Capstone [H,G,S,K] (GER) 3

1 Arts and Humanities and Social Sciences electives must be selected to achieve breadth and depth in an area of study.
2 Select from approved list of Technical Biological Science Electives.
3 Select from approved list of Technical Biological Science Electives or of Engineering Electives.
4 Select from approved list of Engineering Design Electives.

Transfer Students

Students who plan to transfer to biological systems engineering at Washington State University from other institutions should coordinate their programs early with the department to select courses that will be applicable to degree requirements. A strong preparation in mathematics, physics, biology, and chemistry and proper selection of electives will minimize the time required to complete bachelor’s degree requirements.

Description of Courses

Biological Systems Engineering

BSysE 110 Engineering Living Systems (3-3) Engineering design of living systems; social factors influencing design; computer-based engineering tools.

BSysE 210 Biological Systems Analysis and Design (2-3) Prereq Bio S 103, Chem 105; Cpt S 153 or 203. Application of computer-assisted tools for the engineering analysis and design of biological systems.

BSysE 310 Biological Dynamics for System Design (3-3) Prereq BSysE 210. Understanding and application of dynamic computer simulation models for the analysis and design of biological systems. Cooperative course taught jointly by WSU and UI (BSyE 310).

BSysE 311 (410) [M] Project Design 1 (3) Prereq BSysE 210. Technical, professional, ethical, social, economic issues in engineering design.

BSysE 339 Perspectives in Biomedical Engineering 1 (May be repeated for credit; cumulative maximum 3 hours. Prereq BSysE 210 or c//. Seminar on current issues in biomedical engineering; career options in biomedical engineering. S, F grading.

BSysE 351 Environmental Hydrology 3 Prereq Math 140, 171, 202, or 206. Hydrologic cycle; commonly used methods for analysis of components of the cycle; importance of hydrology to the environment. Cooperative course taught by WSU, open to UI students (AgE 353). Credit not granted for both BSysE 351 and 353.
352 Introduction to Soil and Water Engineering 3 (2-3) Prereq BSysE 351, C E 315, SoilS 201. Fundamentals of soil and water engineering; agricultural hydrology and hydraulics, erosion control, and water quality. Cooperative course taught by UI (AgE 352), open to WSU students.

353 (351) Hydrology 3 Prereq one semester of calculus. Analysis of precipitation and runoff events; principles of climatology, evaporation, infiltration, and snowmelt. Credit not granted for both BSysE 351 and 353. Cooperative course taught by UI (BSYE 351), open to WSU students.

362 Agricultural Power and Machinery 3 (2-3) Prereq M E 301 or c//. Performance, operation, and testing of agricultural power units and machinery; functional requirements, force analysis, power transmission, safety, and economics. Cooperative course taught by UI (BSYE 372), open to WSU students.

380 Electric Power and Controls 3 (2-3) Prereq E E 304. Design and on-farm use of electric equipment and systems; design of electronic control systems for agricultural applications. Cooperative course taught by UI (AgE 462), open to WSU students.

398 Undergraduate Seminar 1 May be repeated for credit; cumulative maximum 3 hours. Prereq BSysE 210 or c//. Presentations and discussions of selected topics by students, faculty, and invited speakers. S, F grading.

411 Project Design II 3 (1-6) Prereq BSysE 311 or c//. Detailed design of a biological engineering-related process, machine, structure, or system.

420 Capstone Engineering Design 3 (1-6) Same as M E 420.

430 Physiological Dynamics and Control 3 (2-3) Prereq BSysE 310; Ch E 441, E E 489 or M E 481; Zool 353. Interactions between cells, organs, and whole organisms; physiological and engineering design structures, especially in prosthesis.

441 Process Control 3 Same as Ch E 441.

452 Eco-environmental Engineering Design 3 (2-3) Prereq junior standing. Engineering design to monitor, evaluate, and minimize non-point pollution from agriculture, environmentally acceptable disposal of wastes; bioremediation. Cooperative course taught jointly by WSU and UI (BSYE 452).

453 Irrigation and Drainage System Design 3 (2-3) Prereq junior standing. Crop water requirements, irrigation scheduling and water management, selection and design of irrigation systems; pump selection. Cooperative course taught by UI (AgE 456), open to WSU students.

457 Design for Watershed Management 3 (2-3) Prereq junior standing. Modeling water movement and mass transport; design for balance between animal, plant, soil, water, and air resources in watershed. Cooperative course taught by WSU, open to UI students (BSYE 457).

461 Agricultural Processing and Environment 3 Prereq BSysE 210, C E 315, M E 301 or c//. Materials handling and processing, psychrometrics, heat and mass transfer, pumps and fans, refrigeration, agricultural environments, waste management. Cooperative course taught jointly by WSU and UI (AgE 461).

462 Systems in Integrated Crop Management 3 (2-3) Same as Entom 462.

472 Design of Agricultural Structures 3 (2-3) Prereq C E 213. Design of timber, steel, and reinforced concrete members and connections for agricultural structures. Cooperative course taught by UI (AgE 449), open to WSU students.

474 Fluid Power and Control Systems 3 (2-3) Circuit components; circuit design and testing; agricultural applications. Credit not granted for both BSysE 474 and 574. Cooperative course taught by UI (AgE 474), open to WSU students.

482 Food Process Engineering Design 3 Prereq BSysE 481 or Ch E 330. Design of food processing systems; design and simulation of sterilization and pasteurization processes in foods. Credit not granted for both BSysE 482 and 582. Cooperative course taught by WSU, open to UI students (AgE and FST 487).

483 Food Separation Processes Design 3 Prereq BSysE 482. Design of food separation unit operations including concentration, dehydration, and membrane processes. Credit not granted for both BSysE 483 and 583. Cooperative course taught by WSU, open to UI students (BSYE 483).

486 Food Rhoology 3 (2-3) Prereq BSysE 481. Principles and applications on the rheology of foods, including fundamental and empirical equations; viscoelasticity; normal forces, time dependency and instrumentation. Credit not granted for both BSysE 486 and 586. Cooperative course taught by WSU, open to UI students (BSYE 486).

487 Food Plant Design 3 Prereq BSysE 482. Preliminary design of food processing plants, including engineering, equipment selection, economic analysis, and regulatory aspects. Cooperative course taught by WSU, open to UI students (BSYE 487).

488 Food Powders 3 Engineering principles applied to handling and processing of food powders, including particle size distribution, morphology, physical properties, agglomeration, attrition, segregation. Credit not granted for both BSysE 488 and 588. Cooperative course taught by WSU, open to UI students (BSYE 488).

491 Advanced Topics V 1-3 May be repeated for credit; cumulative maximum 8 hours. Prereq junior standing.

495 Internship in Biological Systems Engineering V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq sophomore standing. Prior approval of supervisor and advisor required. Work experience related to academic learning. S, F grading.

496 Conservation Engineering 3 (2-3) Prereq BSysE 452. Predicting occurrence and disposition of water on agricultural watersheds; hydrologic modeling; erosion processes; control structures and methods; construction practices. Credit not granted for both BSysE 496 and 596. Cooperative course taught by WSU, open to UI students (AgE 496).

499 Special Problems V 1-4 May be repeated for credit. S, F grading

510 Fundamentals of Research 3 Prereq graduate standing. The research process and the graduate research project; objectives, techniques, and challenges; scientific method and the design process; use of literature; creativity; writing and speaking about research; preparation of a research proposal. Cooperative course taught by UI (AgE 541), open to WSU students.

541 Instrumentation and Measurements 3 (2-3) Prereq Math 172; Phys 102 or 202. Instrumentation systems and measurement concepts, electronic signal-conditioning components and circuitry, digital electronics and microprocessor basics. Cooperative course taught by UI (AgE 541), open to WSU students.

550 Advanced Hydrology 3 Principles of the hydrologic cycle in mountainous areas, including precipitation, snowmelt and systems simulation. Cooperative course taught by UI (AgE 551), open to WSU students.

555 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 UI (AgE 555), open to UI students (AgE 561).

558 Fluid Mechanics of Porous Materials 3 Statics and dynamics of multi-flow systems in porous materials, properties of porous materials; steady and unsteady flow. Cooperative course taught by UI (AgE 558), open to WSU students.

562 Systems in Integrated Crop Management 3 (2-3) Same as Entom 562.

566 Constructed Wetlands for Pollution Control 2 Prereq graduate standing. Application of constructed wetlands for pollution control; design procedures. Cooperative course taught by WSU, open to UI students (BSYE 566).

574 Fluid Power and Control Systems 3 (2-3) Graduate-level counterpart of BSysE 474; additional requirements. Credit not granted for both BSysE 474 and 574. Cooperative course taught by UI (AgE 574), open to WSU students.

581 Advanced Physical Properties of Foods 3 Prereq BSysE 481, Math 315. Analysis, modeling, and experimental procedures to measure food physical properties for use in food processing system design.

582 Food Process Engineering Design 3 Graduate-level counterpart of BSysE 482; additional requirements. Credit not granted for both BSysE 482 and 582. Cooperative course taught by WSU, open to UI students (BSYE 582).

583 Food Separation Processes Design 3 Graduate-level counterpart of BSysE 483; additional requirements. Credit not granted for both BSysE 483 and 583.

586 Food Rhoology 3 (2-3) Graduate-level counterpart of BSysE 486; additional requirements. Credit not granted for both BSysE 486 and 586. Cooperative course taught by WSU, open to UI students (BSYE 586).

587 Food Plant Design 3 Graduate-level counterpart of BSysE 487; additional requirements. Credit not granted for both BSysE 487 and 587. Cooperative course taught by WSU, open to UI students (FST 587).
588 Food Powders 3 Graduate-level counterpart of BSysE 488; additional requirements. Credit not granted for both BSysE 488 and 588. Cooperative course taught by WSU, open to UI students (BSyE 588).

589 Food Quality Instrumentation 3 (2-3) Instrumentation used in food quality assessment; classification of assessment techniques by property products and evaluation methods. Cooperative course taught by WSU, open to UI students (BSyE 589).

590 Advanced Theory of Irrigation Water Requirement 3 Energy balance and consumptive use of water; influence on farm and project irrigation system design criteria, management, and efficiencies. Cooperative course taught by WSU, open to UI students (AgE 553).

592 Advanced Theory and Design of Irrigation Systems 3 (2-3) Prereq BSysE 453 or 590. Design and development of irrigation water application systems. Cooperative course taught by WSU, open to UI students (AgE 593).

593 Drainage Engineering 3 (2-3) Prereq BSysE 352 or 453. Engineering principles applied to surface and sub-surface drainage problems; investigation, design, materials, and construction of drainage systems. Cooperative course taught by WSU, open to UI students (AgE 593).

596 Conservation Engineering 3 (2-3) Graduate-level counterpart of BSysE 496; additional requirements. Credit not granted for both BSysE 496 and 596. Cooperative course taught by WSU, open to UI students (AgE 596).

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

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master's Special Problems, Directed Study and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. (For PhD in engineering science only.) S, F grading.

Agricultural Technology and Management

The Department of Biological Systems Engineering prepares students in agricultural technology and management for the application of technology to operations or management in agriculture. The areas of application are: farming operations, services, management of agriculturally oriented businesses, and promotional work in agricultural communities.

Emphasis is placed upon the practical application of technology to agricultural enterprises. This prepares students to own, operate, and manage their own enterprises or provide services for private or governmental entities.

A wide variety of agricultural technology and technical management courses is available to nonmajors in support of programs in other departments. Many courses can be used as electives by students who wish to explore the field or to use the information for other personal reasons.

The department also offers a minor in Agricultural Technology and Management.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

The Bachelor of Science degree in Agricultural Technology and Management requires a minimum of 122 credit hours for graduation. Of these, at least 40 hours including 12 hours of Ag electives must be courses numbered 300 or above.

Agricultural Technology and Management Degree Program (122 Hours) 

Freshman Year

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<td>Engl 101 [W] (GER)</td>
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<td>Math 107 or 201</td>
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Second Year

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<td>Arts &amp; Humanities [HG] (GER)</td>
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<td>Chem 102 [P] (GER)</td>
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<td>Math 202 [N] (GER)</td>
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Sophomore Year

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<td>Bio S 103 [B] (GER)</td>
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<td>Chem 240 or Phys 101 [P] (GER)</td>
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Second Year

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<td>Bio S 104[B] or Bot 120[B] (GER)</td>
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<td>Communication[C,W] (GER)</td>
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Junior Year

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<tr>
<td>300-400-level Ag Ec or Business Elective1 3</td>
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<tr>
<td>300-400-level Ag or Business Elective2 3</td>
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<td>AgTM 312</td>
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<td>SoilS 201</td>
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<td>Complete Writing Portfolio</td>
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Second Year

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<tr>
<td>300-400-level Ag or Business Elective2 3</td>
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Senior Year

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<tr>
<td>300-400-level Ag Ec or Business Elective22 3</td>
<td></td>
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<tr>
<td>300-400-level Ag or Business Elective2 3</td>
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<td>AgTM 315</td>
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<td>Intercultural [I,G,K] (GER)</td>
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Second Year

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<tr>
<td>300-400-level AgTM Elective 3</td>
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</table>

AgTM 433 [M] 3 elective

Tier III Capstone (GER) 3

1 Students must complete one of the following sequences: Age Ec 340/440, Age Ec 360/460, Age Ec 350 or 370/450 [M] or two 300-level business courses chosen from the required list for business minors.

2 During the junior or senior year, students must take one more writing in the major course [M] in addition to AgTM 433 [M], for a total of two [M] courses.

Description of Courses

Agricultural Technology and Management

AgTM 110 Introduction to Agricultural Technology and Management 1 For freshmen. Basic skills for analyzing, solving, and presenting problems in modern agriculture.

201 Metal Fabrication 3 (1-6) Theory, applications, and practices of welding, machining, and associated techniques in fabricating with metals.

203 Agricultural Structures 3 (2-3) Principles and practices in farm building construction; foundations, frames, materials, tools and plans; experience with tools and materials. Cooperative course taught by WSU, open to UI students (ASM 203).

210 Small Engines 2 (1-3) Repair, adjustment, protective maintenance, operation, and safety of small gasoline engines. Cooperative course taught by UI (ASM 210), open to WSU students.

305 Agricultural Machinery Systems 3 (2-3) Principles, materials of construction, care, capacity of tillage, planting, spraying, harvesting, and materials handling machinery. Cooperative course taught jointly by WSU and UI (ASM 305).

306 Agricultural Structures and Environmental Systems 3 (2-3) Planning farm buildings, construction materials, beam and column design, insulation and ventilation for environmental control. Cooperative course taught by UI (ASM 306), open to WSU students.

312 Engines and Tractors 3 (2-3) Principles of engine operation, fuels, combustion, efficiency, power transmission, energy conversion, power measurement, tractor safety and costs. Credit not granted for both AgTM 312 and 409. Cooperative course taught by WSU, open to UI students (ASM 312).

315 Irrigation Systems and Water Management 3 (2-3) Prereq Math 101; 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).

331 Electrical Power Systems for Agriculture 3 (2-3) Basic electricity, wiring, and electrical applications in agricultural production. Cooperative course taught jointly by WSU and UI (ASM 331).

346 Landscape Irrigation Systems 2 (1-3) Soil-water-plant-atmosphere relations; pumps and pumping; layout, construction and operation of irrigation systems for turf and landscape plantings.
402 Methods, Materials, and Machines for Teaching Ag Mechanics 3 (1-0) Prereq AgTM 201, 203; 9 hours in Educ. Development of shop programs in project planning, demonstrations, and skills performance; safety and management of materials, tools, and machines.

403 Laboratory Projects Teaching Techniques 1 (1-3) May be repeated for credit; cumulative maximum 2 hours. Teaching techniques for laboratory projects in agricultural mechanics.

409 Agricultural Tractors and Power Units 4 (3-3) Selection, operation, adjustment, service, and testing; fuels and combustion; fuel lubrication, cooling, and electrical systems; tractor power trains, hitching, traction, and safety. Credit not granted for both AgTM 312 and 409. Cooperative course taught by UI (ASM 409), open to WSU students.

413 Human and Machinery Risk Management 3 Analysis, interpretation, and management of health and safety issues in agriculture; use of health and safety materials and industry codes. Cooperative course taught by WSU, open to UI students (ASM 413).

416 Mobile Hydraulics 3 (2-3) Fluid power principles applied to the operation, selection, and maintenance of agricultural machinery. Cooperative course taught by WSU, open to UI students (ASM 416).

426 Energy Concepts in Agricultural Structures 3 (2-3) Prereq AgTM 203. Basic concepts of psychrometrics, temperature-moisture relationships, heat transfer, and energy management in agricultural structures. Credit not granted for both AgTM 426 and 526.

433 [M] Agricultural Processing 3 Rec Math 140 or 202; Phys 101. Principles of heat transfer, steam, air-vapor mixtures, refrigeration and fluid flow as applied to commodity processing and storage. Cooperative course taught by WSU, open to UI students (ASM 433/FST 433).

434 Agricultural Processing Laboratory 1 (0-3) Rec AgTM 433 or c/. Experiments in heat transfer, fluid flow and dehydration. Cooperative course taught by WSU, open to UI students (FST 434).

435 Instrumentation for Data Acquisition in Agriculture 3 (2-3) Prereq AgTM 531 or c/. Agricultural applications of instrumentation and measurement principles; the use of microcomputers for data acquisition, analysis, and control applications. Credit not granted for both AgTM 435 and 535. Cooperative course taught by WSU, open to UI students (ASM 435/FST 435).

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.

453 Agricultural Waste Management 2 Prereq junior standing. Waste treatment processes, management plan, regulations and permits.

481 Advanced Topics V 1-4 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.

526 Energy Concepts in Agricultural Structures 3 (2-3) Graduate-level counterpart of AgTM 426; additional requirements. Credit not granted for both AgTM 426 and 526.

533 Instrumentation for Data Acquisition in Agriculture 3 (2-3) Prereq AgTM 331 or c/. Graduate-level counterpart of AgTM 435; additional requirements. Credit not granted for both AgTM 435 and 535. Cooperative course taught by WSU, open to UI students (ASM 435).

Degree Program Requirements

AGRICULTURE

Honors students complete Honors Requirements in place of General Education Requirements.

The Department of Biological Systems Engineering offers a flexible course of studies that allows students to prepare themselves for a broad range of careers in agriculture while earning a Bachelor of Science in Agriculture degree. Students can choose from three majors: General Agriculture, Agricultural Education and Agricultural Communications. In each major, emphasis is placed on gaining a solid background in the agricultural sciences while studying specific subjects that prepare graduates for their chosen fields.

GENERAL AGRICULTURE DEGREE PROGRAM (121 HOURS) ☑️FYDA

General agriculture is designed for students who wish to prepare for careers requiring broad training in agriculture. A maximum number of electives is permitted to enable the student to emphasize one or two fields, or otherwise to tailor the curriculum to fit particular needs. Students desiring to qualify as conservationists in the Natural Resources Conservation Service should have 12 hours of soils. To qualify as soil scientists, a total of 15 hours in soils is required. Soils 201, 301, 403, 421, and 451 are recommended.

Freshman Year

First Semester

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<td>Engl 101 [W] (GER)</td>
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<td>H D 105 [C] (GER)</td>
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Second Semester

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Sophomore Year

First Semester

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<td>Ag Ec 201 [S] (GER)</td>
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<tr>
<td>Ag Elective</td>
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<td>Chem 101 [P] (GER)</td>
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<td>Engl 201 [W] (GER)</td>
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<td>Math 205 [N] (GER) recommended</td>
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Second Semester

<table>
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<tbody>
<tr>
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Junior Year

First Semester

<table>
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<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>300-400-level Ag Elective</td>
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Senior Year

First Semester

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<th>Course</th>
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<td>300-400-level Ag Requirements1</td>
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<td>Ag Elective</td>
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<td>Arts &amp; Humanities [H,G] (GER)</td>
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Second Semester

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<tr>
<td>300-400-level Ag Requirement [M]</td>
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<tr>
<td>300-400-level Ag Requirements1</td>
<td>6</td>
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<tr>
<td>Intercultural [I, G, K] (GER)</td>
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</tr>
</tbody>
</table>

AGRICULTURAL EDUCATION DEGREE PROGRAM (134 HOURS) ☑️FYDA

The agricultural education major prepares students to teach high school agriculture. A minimum of 46 hours in agricultural sciences is required for graduation.

This course of study leads to the degree of Bachelor of Science in Agriculture. The program includes minimum requirements for initial teacher certification.

At least 40 of the total hours required for this degree must be in 300-400-level courses, with at least 20 hours in agriculture. 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, 41 hours in professional education. The program requires a minimum of 134 semester hours for graduation. Students must take all agriculture courses plus 15 additional credits in agriculture from the College of Agriculture and Home Economics. Students must also meet the College of Education certification requirements for general certification for entry into the program.

Freshman Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tr>
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<td>Ag Ec 2101</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>H D 205 [C] (GER)</td>
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Second Semester

<table>
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<tr>
<td>Bio S 104 [B] (GER)</td>
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</tr>
<tr>
<td>Psych 105 [S] (GER)</td>
<td>3</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Hort 2011</td>
<td>4</td>
</tr>
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</table>
Sophomore Year

First Semester
- Ag Ec 201 [S] (GER) 3
- Chem 101 [P] (GER) 4
- CropS 101 or 201 1 3
- Engl 201 [W] (GER) 3
- Math 140 [N] or 212 [N] (GER) 4

Second Semester
- Ag Ec 340 or 350 1 3
- Ag Elective 3
- Chem 102 [P] (GER) 4
- EdPsy 301 3
- GenEd 111 [A] (GER) 3
- T & L 300 1

Junior Year

First Semester
- Hours
- 300-400-level Ag Elective 6 6
- Ag Ed 471 2
- Arts & Humanities [H,G] (GER) 3
- Hort 234 1 3
- SoilS 201 1 3
- T & L 317 3
- T & L 328 [M] 2
- Tier III Capstone (GER) 3

Second Semester
- Hours
- 300-400-level Ag Electives 6 6
- Intercultural [I, G, K] (GER) 3
- T & L 317 3
- T & L 328 [M] 2
- Complete Writing Portfolio

Senior Year

First Semester
- Hours
- 300-400-level Ag Elective 3
- Ag Elective 1 3
- Ag Elective or CropS 305 3
- Ag Ed 440 [M] 2
- AgTM 402 3
- Edpsy 402 2
- T & L 404 3
- T & L 450 2

Second Semester
- Hours
- Ag Ed 342 3
- Ag Ed 345 1
- Ag Ed 407 6
- Ag Ed 442 2
- T & L 415 6

1 Students must take all core agriculture courses plus 16 additional credits in technical agriculture from the College of Agriculture and Home Economics. (Student teaching requires Ag Ed 407 and T & L 415.) This program of study meets the Science and Society Area of Coherence requirement.

Description of Courses

Agricultural Education

Ag Ed
- 342 Methods of Teaching Agriculture and Home Economics 3 Prereq T & L 303 or cfl Curricular development for agriculture and home economics.
- 345/346 Industrial Safety and Hygiene 1 Safety and industrial hygiene principles; federal and state regulations. Required for vocational certification.

407 Directed Teaching, Agriculture and Home Economics V 4-10 Prereq Ag Ed 342 or 442. Supervised teaching in public schools for agricultural education or home economics education majors. S, F grading.

440 [M] Principles of Vocational 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.

470 Directed Work Experience V 1-3 May be repeated for credit; cumulative maximum 6 hours. Job analysis and description; weekly work experience reports and analysis coordinated with problems related to the student’s employment in an approved occupation.

471 Student Organizations in Agricultural Education 2 Prereq certified college of education major. Role of FFA in student organizations; role of FFA advisor; principles of leadership; characteristics of successful FFA chapters.

477 Agricultural Science in K-12 Classrooms 1 Developing selected agricultural and science curricula for K-12; special methods, materials and exercises.

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 Cooperative Education Internship V 2-12 Prereq undergraduate student. Off-campus cooperative education internship with business, industry, or government unit. S, F grading.

504 Special Topics in Vocational Education V 1-3 Special topics in agricultural education or agriculture that will provide advanced training for teachers of agriculture.

508 Foundations of Vocational Education 2 Historical, philosophical, social and economic factors that influence education in vocational environments.

511 Seminar in Vocational Education 1 or 2 Prereq graduate standing. Seminar addressing new and emerging legislation and educational programs in vocational education.

536 Microcomputers in the Vocational Classroom 3 (2-3) Implications and applications of microcomputers for experienced classroom teachers.

597 Cooperative Education Programs 3 Program principles and design; teacher coordination procedures and responsibilities; classroom and on-the-job instruction; public relations; teacher administrative responsibilities.

598 Internship V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 12 hours. Supervised experience in continuing, extension, and/or vocational educational environments.

600 Special Projects or Independent Study Variable credit. S, F grading.

Degree Program Requirements

AGRICULTURAL COMMUNICATIONS--BROADCAST AND PRINT MEDIA DEGREE PROGRAMS

Honors students complete Honors Requirements in place of General Education Requirements.

A major in agricultural communications is offered in cooperation with the School of Communication.

Students declaring this major must complete the requirements of the general agriculture curriculum and earn a minimum of 30 hours in the School of Communication, including any communications courses used to satisfy general agriculture requirements. Those electing this major should make known that decision as early as possible in their academic career.

A total of 46 agriculture credits are required. 15 credits must be from one department and 9 credits from another department. Both the Broadcast Media and Print Media programs of study meet the Science and Society Area of Coherence requirement.

FIRST AND SECOND YEAR REQUIREMENTS

Requirements for the first two years are common to both degree programs:

Freshman Year

First Semester
- Hours
- Ag Elective 1 1
- Ag Requirement 1 3
- Bio S 103 [B] (GER) 4
- Com 101 3
- Engl 101 [W] (GER) 3
- H D 205 [C] (GER) 3

Second Semester
- Hours
- Ag Elective 1 3
- Ag Requirement 1 3
- Bio S 104 [B] (GER) 4
- GenEd 110 [A] (GER) 3
- Psych 105 [S] (GER) 3

Sophomore Year

First Semester
- Hours
- Ag Ec 201 [S] (GER) 3
- Ag Elective 1 3
- Chem 101 [P] (GER) 4
- Engl 201 [W] (GER) 3
- Stat 212 [N] (GER) 4

Second Semester
- Hours
- 300-400-level Ag Requirement 3 3
- Ag Elective 1 3
- Ag Requirement 1 6
- Com 245 3
- GenEd 111 [A] (GER) 3

BROADCAST MEDIA DEGREE PROGRAM

131 HOURS ✔ FYDA

Junior Year

First Semester
- Hours
- 300-400-level Ag Requirement 1 3
- Ag Elective 1 3
- Arts & Humanities [H,G] (GER) 3
- Com 295 3
- Complete Writing Portfolio
Communication or a designated representative.

conjunction with the head of the School of Communication advisor before registering for elective courses. Specialized programs patterned for individual career aspirations may be developed in culture courses. Consult with a School of

First Semester
Bdcst 350 3
Com 409 3
300-400-level Ag Requirement 6 3
Intercultural [I, G, K] (GER) 3
P R 313 [M] 3

Second Semester
Bdcst 355 3
Bdcst 365 [M] 3
Com Elective 3
P R 412 3
Tier III Capstone (GER) 3


1 See department for options within required agriculture courses. Consult with a School of Communication advisor before registering for elective courses. Specialized programs patterned for individual career aspirations may be developed in conjunction with the head of the School of Communication or a designated representative.

Program in Biology

Associate Professor and Program Chair, J. L. Paznakas; Professors, R.N. Mack, L. P. Mallavia, K. D. Spence, G. L. Young; Associate Professors, R. A. Black, J. W. Crane, K. V. Kardong, S. B. Moffett, M. E. Murphy, P. S. Solitis; Assistant Professors, P. Carter, L. D. Hufford, R. W. Lee; Adjunct Faculty, L. E. Rogers.

The introductory biological science courses provide background in the concepts common to life sciences and an overview of the diversity of animals, plants, and microorganisms. They meet General Education Requirements and may be prerequisite for courses in botany, microbiology, and zoology. Advanced biological science courses probe specific areas in depth.

This program leads to the degrees of Bachelor of Science in Biology and Master of Science in Biology.

Four options are available for the Bachelor of Science degree: biology education, botany, general biology, and prephysical therapy (prehealth). A minor in biology is offered.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

At least 40 of the total hours required for the bachelor’s degree must be in 300-400-level courses. Two 300-400-level courses in the biological sciences with [M] designation are needed to satisfy the writing in the major university graduation requirement. Additionally, 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.

In addition to the above requirements, students select one of the following degree programs: Biology Education; Botany; General Biology; and Prephysical Therapy (Prehealth).

FIRST YEAR REQUIREMENTS

The first year requirements are common to all biology degree programs:

Freshman Year
First Semester
Bio S 105 [B] (GER) 4
Chem 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3

Second Semester
Bio S 104 [B] (GER) 4
Chem 106 [P] (GER) 4
GenEd 111 [A] (GER) 3
Math 140 [N] or 171 [N] (GER) 4

Biology Education Degree Program (137 Hours)

Sophomore Year
First Semester
Chem 240 4
Phys 101 [P] (GER) 4
Psych 105 [S] (GER) 3
SpCom 102 [C] (GER) 3

Second Semester
BC/BP 364 4
Engl 201 [W], 301 [W], or 302 [W] (GER) 3
GenCB 301 4
Phys 102 [P] (GER) 4

Junior Year
First Semester
Arts & Humanities [H,G] (GER) 3
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Chem 220 2
Chem 222 2
T & L 300 1
T & L 301 3
T & L 303 3
Complete Writing Portfolio

Second Semester
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Bio S 372 [M] 4
Bioalogy Electives 6
T & L 317/318 3

Senior Year
First Semester
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Ed Psy 402 2
T & L 328 2
Tier III Capstone 3
Zool 405 3
Electives 3

Second Semester
Bio S 430 3
GenCB 450 3
Intercultural [L,G,K] (GER) 3
T & L 450/451 2
T & L 404 3

Directed Teaching--Fifth Year
T & L 415 16

1 Pre-med students and those interested in advanced degrees should take Chem 340, 341, 342, 343 (a one-year course in organic chemistry).

Botany Degree Program (120 Hours)

Sophomore Year
First Semester
Arts & Humanities [H,G] (GER) 3
Chem 240 4
Communication Proficiency [C,W] (GER) 3
Phys 101 [P] (GER) 4

Second Semester
BC/BP 364 4
GenCB 301 4
Phys 102 [P] (GER) 4
Social Sciences [S,K] (GER) 3

Junior Year
First Semester
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 6
Bio S 372 [M] 4
Stat 412 3
Electives 2 or 3
Complete Writing Portfolio

75
## Program in Biology

### DEGREE PROGRAM (120 HOURS) \(^{\text{FYDA}}\)

#### Sophomore Year

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<tr>
<td>Bot 320</td>
<td>3</td>
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<td>Bot 332</td>
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<td>Intercultural [L,G,K] (GER)</td>
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<td>Electives</td>
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<td>Tier III Capstone (GER)</td>
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<tr>
<td>Electives</td>
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1 Pre-med students and those interested in advanced degrees should take Chem 340, 341, 342, 343 (a one-year course in organic chemistry).

2 Bot 410 is strongly recommended.

### Junior Year

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<th>First Semester</th>
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<tr>
<td>Chem 240(^{1})</td>
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<tr>
<td>Communication Proficiency [C,W] (GER)</td>
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<tr>
<td>Phys 101 [P] (GER)</td>
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<tbody>
<tr>
<td>GenCB 301</td>
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<td></td>
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<tr>
<td>Phys 102 [P] (GER)</td>
<td>4</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
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#### Senior Year

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<th>Hours</th>
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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>Bio S 372 [M]</td>
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<td>Electives</td>
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<td>Complete Writing Portfolio</td>
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</table>

1 Pre-med students and those interested in advanced degrees should take Chem 340, 341, 342, 343 (a one-year course in organic chemistry).

### 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 the program chair.

### Preparation for Graduate Study

Students with undergraduate majors in such fields as microbiology, biology, botany, zoology, and plant or animal sciences in the College of Agriculture and Home Economics may be prepared for graduate study in biology. Graduate Record Examination scores from the general aptitude and advanced biology sections are required.

### Description of Courses

#### Biological Science

| Bio S 101 [B] Direction in Biological Sciences | 3 |  |
| 102 [B] General Biology | 4 (3-3) | Not open to students who have taken a college-level course in general biology or botany. Nature of living things, methods, and function of diverse organisms. Credit not granted for Bio S 102 and 101, 103 or 105. |

103 [B] Introductory Biology | 4 (3-3) | PreReq one semester Chem or c/. First semester of a one-year sequence. Recommended for pre-professional students. The nature of life, structure, function, genetics, growth, and development. Credit not granted for Bio S 103 and 101, 102, or 105. |

104 [B] Introductory Biology | 4 (3-3) | PreReq Bio S 103 (Bio S 101 or 102 with a grade of A or B may be substituted); two semesters Chem or c/. Continuation of Bio S 103. Biology of organisms; plants, animals, bacteria, ecology, and evolution. |

105 [B] Biological Science Laboratory | 1 (0-3) | PreReq college-level nonlabatory general biology course. Elements of structure and function of organisms. For non-majors in the biological sciences. Credit not granted for more than one of Bio S 102, 103, 105. |

201 [B] Contemporary Biology | 1 Bio S 101, 102, 103, Bot 120, or Micro 101. Biological information that provides a framework for understanding life processes; impact of biological information on human affairs. |


298 [B] Biological Science Honors | 4 (3-3) | |

372 [M] General Ecology | 4 (3-3) | PreReq Bio S 104, one semester Chem. Relationship of organisms with physical and biotic components of their environment; at the population, community, and ecosystem level. |

401 [T] Plants and People | 3 PreReq Bio S 102, 104, or Bot 120; completion of one Tier I and three Tier II courses in appropriate area of coherence. Relationships between plants and people, especially cultural and economic applications of plants. |

430 Methods of Teaching Science | 3 (2-3) | PreReq T & L 303; 12 hours science. Methods, philosophy, and structure of science; application in teaching middle and secondary school science courses. |


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. |


1 Open only to students in the Honors Program.
Department of Botany

490 [M] Professional Seminar in Physical Therapy 2 (1-3) Prereq by interview only. Consideration of treatment modalities and health issues in physical therapy and related disciplines.

491 Physical Therapy Clinical Experience V 1-4 May be repeated for credit; cumulative maximum 20 hours. Prereq Psych 105; Zool 315; major in biology. Junior standing. By interview only. Work experience under supervision of a qualified professional in treatment of human physical disabilities. S, F grading.

495 Internship in Biology V 2-4 May be repeated for credit; cumulative maximum 8 hours. Prereq major in Bio S. By interview only. Experience in work related to specific career interests. S, F grading.

498 [M] Senior Thesis 3 Prereq senior standing, 4 research hours. Experimental/literature research leading to written thesis and oral examination.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

530 Statistical Ecology 4 (2-6) Prereq introductory statistics course. Collection and interpretation of ecological data according to biometrical procedures.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study and/or Examination Variable credit. S, F grading.

Preparation for Graduate Study

Before undertaking graduate study, a student should have completed substantially the equivalent of the schedule of studies shown under the biology program for the botany option.

Undergraduate majors in such subjects as the applied plant sciences, the biological sciences, and the physical sciences may be well prepared for graduate study in this department. Students having deficiencies are given adequate opportunity to fulfill departmental requirements. Applicants should submit scores of the general aptitude test of the Graduate Record Examination. (The advanced GRE test in biology is recommended.)

Description of Courses

Botany

120 [B] Introduction to Botany 4 (3-3) A survey of the plant kingdom; structure and function of vascular plants.

320 Introductory Plant Physiology 4 (3-3) Prereq Bio S 104 or Bot 120; org chem or c/l. Water relations, mineral nutrition, photosynthesis, respiration, and growth of plants.

325 Plant Biotechnology 3 Prereq Bot 120, GenCB 301. Introduction to the genetic engineering of plants.

332 Systematic Botany 4 (2-6) Prereq Bio S 102, 104 or c/l, or Bot 120. Identification and classification of vascular plants with emphasis on the local flora.

405 Principles of Organic Evolution 3 Same as Zool 405. Credit not granted for both Bot 405 and 505.

406 Microtechnique 4 (2-6) By interview only. Modern methods for preparation of biological specimens for microscopy: paraffin and resin embedding, microtomy, anatomical, cytological and histochemical techniques. Credit not granted for both Bot 406 and 506.

410 Plant Anatomy 4 (2-6) Prereq Bio S 102, 104 or c/l, or Bot 120. Identification and classification of vascular plants with emphasis on the local flora.

417 Stress Physiology of Plants 3 Rec Bot 320. Temperature, light, salinity, water effects on physiological processes; mechanistic understanding of stress. Credit not granted for both Bot 417 and 517.

429 General Plant Pathology 3 Same as PLP 429.

430 Principles of Plant Systematics 3 Prereq Bot 332. Systematic theory: history and current views; approaches to phylogeny reconstruction and classification. Credit not granted for both Bot 430 and 530.

441 Agrostology 3 Prereq Bot 332. Classification, distribution, and structures of grasses with emphasis at the genetic level. Field trips required. Cooperative course taught by UI (Bot 441), open to WSU students.

448 Evolutionary Ecology of Populations 3 Same as Zool 448. Credit not granted for both Bot 448 and 548.

450 Introduction to Cell Biology 3 Same as GenCB 450.

460 Ecophysiology 3 Prereq Bio S 372; Bot 320. Relationships of biotic and abiotic environment to plant distribution and evolution through study of physiological processes. Credit not granted for both Bot 460 and 560.


499 Special Problems V 1-4 May be repeated for credit. S, F grading.

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

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

505 Principles of Organic Evolution 3 Graduate counterpart of Bot 405; additional requirements.

506 Microtechnique 4 (2-6) Graduate-level counterpart of Bot 406; additional requirements. Credit not granted for both Bot 406 and 506.

510 Plant Anatomy 2 (4-6) Graduate-level counterpart of Bot 410; additional requirements. Credit not granted for both Bot 410 and 510.

511 Plant Cell Biology 3 Function of the plant cell with emphasis on current research; topics include membrane biology, protein targeting, and molecular signaling.

512 Molecular Mechanisms of Plant Development 3 Prereq Bot 320. Physiology of growth; metabolism during development and reproduction.

513 Plant Metabolism 3 Prereq BC/BP 364, Bot 320. Metabolic processes unique to plants, including the primary incorporation of nitrogen, sulfur, carbon dioxide and phosphate into biomolecules.

515 Seminar in Plant Physiology 1 May be repeated for credit. Same as CropS 515.

516 Water Relations and Intercellular Transport 3 Prereq Bot 320. Movement of water and solutes in plants, from the cellular level to the whole-plant level.

517 Stress Physiology of Plants 3 Graduate-level counterpart of Bot 417; additional requirements. Credit not granted for both Bot 417 and 517.

518 Photosynthesis, Photorespiration, and Plant Productivity 3 Rec BC/BP 364 or Bot 320. Photosynthesis, photorespiration and the interrelationship of those biochemical, physiological, and environmental factors which determine plant productivity.

520 Conservation Genetics 2 Same as GenCB 520.

520 Quantitative Genetics 2 Same as GenCB 521.

521 Experimental Plant Ecology 3 (1-6) Same as NATRS 525.

530 Principles of Plant Systematics 3 Graduate-level counterpart of Bot 430; additional requirements. Credit not granted for both Bot 430 and 530.

533 Modern Methods in Systematics 4 (2-6) Rec Bot 430 or Zool 511. Selecting, gathering, and analyzing morphological, cytological, molecular data for phylogenetic and evolutionary studies.
535 Angiosperm Families of the World 3 (2-3) Preq Bot 332 or 430. Description, classification, and geographic distribution of families of flowering plants of the world.

548 Evolutionary Ecology 3 Same as Zool 548. Credit not granted for both Bot 448 and 548.

560 Ecophysiology 3 Graduate-level counterpart of Bot 460; additional requirements. Credit not granted for both 460 and 560.

562 Community Ecology 3 Graduate-level counterpart of Bot 462; additional requirements. Credit not granted for both Bot 462 and 562.

563 Field Ecology 2 (0-6) Graduate-level counterpart of Bot 463; additional requirements. Credit not granted for both Bot 463 and 563.

590 Advanced Topics in Botany V 1-4 May be repeated for credit. Recent research in plant science.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Electron Microscopy

406 Microtechnique 4 (2-6) Same as Bot 406. Credit not granted for both Bot 406 and 506.

506 Microtechnique 4 (2-6) Same as Bot 506. Credit not granted for both Bot 406 and 506.

507 Electron Microscopy Laboratory 4 (2-6) Preq one year biology; one year org chem; one year phy; by interview only. Techniques of transmission electron microscopy, especially those applicable to biological materials; theory and practice for electron optics and specimen preparation.

586 Special Projects in Electron Microscopy 2 (0-6) or 3 (0-9) May be repeated for credit. By interview only. Practical training in one or more areas of electron microscopy; TEM, SEM, ultramicrotomy, specimen processing, darkroom procedures and light microscopy.

587 Special Topics in Electron Microscopy 1 May be repeated for credit; cumulative maximum 4 hours. S, F grading.

DEPARTMENT OF FINANCE, INSURANCE, AND REAL ESTATE

SAFECHO Distinguished Professor of Risk Management and Insurance and Department Chair, N. Bell; Professors, Victor L. Lyon/CCIM Distinguished Professor of Real Estate D. Epley, H. Kerr; Bronsin Chair of Investments Management J. Kling, G. Petry; Associate Professors L. Han, R. Sias; Assistant Professors, V. Armstrong, K. Beller, R. Throupe, H. Turtle, D. Whidbee, Alvin J. Wolf Professor of Real Estate M. Wolverton.

DEPARTMENT OF MANAGEMENT AND DECISION SCIENCES

Professor and Department Chair, M. C. Wang; Professors, D. Baker, J. Cullen, C. Morgan, A.G. Sullenger; Associate Professors, S. Ahn, B. Chen, S. Fotopoulos, J. Goodstein, D. Lemak, R. Reed, T. Tripp; Assistant Professors, K. Butterfield, F. Carnanikas, N. Mero, V. Miskin, C. Munson, A. Asudevan, K. Wade.

DEPARTMENT OF MARKETING

Professor and Department Chair, D. Muehling; Professors, J. Cote, James and Diana Huber Chair of Entrepreneurial Studies R. Markin, J. McCallough, D. Stem, P. Tansuhaj; Associate Professors, P. Henderson, J. Johnson, E. Spangenberg, U. Umesh; Assistant Professors, J. Giese, J. Gregan-Paxon, R. Grewal, J. Rose, S. Silverman, D. Sprott.

INTERNATIONAL BUSINESS INSTITUTE

Professor and Director J. McCallough; Professor, P. Tansuhaj; Assistant Professor, J. Rose.

The International Business Institute (IBI) was established to coordinate international activities in the College of Business and Economics. The IBI draws faculty, staff, and students together to achieve excellence in the internationalization of business education, research, and service. It administers the international business curriculum and advises all international business majors. The IBI aims at encouraging the business and economics faculty, staff, and students to be involved in interesting and exciting activities in the global business of the new millennium.

The study of business administration involves the understanding and application of knowledge developed in a wide range of interrelated disciplines, such as accounting, finance and banking, human resources/personnel, international business, management information systems, management, marketing, decision sciences, and real estate. Concepts from mathematics, sociology, psychology, anthropology, economics, and other disciplines are integrated in order to provide the individual with both a practical and theoretical understanding of business organization and its functions in our society. The broad education offered by this curriculum permits the student an almost unlimited range of employment opportunities in business, industry, and government.

The curricula leading to degrees in business administration at both the undergraduate and graduate levels are accredited by AACSB—the International Association for Management Education. The accounting programs are also separately accredited by the AASCB.

The business departments at the Pullman campus offer courses of study leading to the degrees of Bachelor of Arts in Business Administration, Master of Accounting, Master of Business Administration, and Doctor of Philosophy. The Bachelor of Arts in Business Administration and Master of Business Administration degrees are also offered through the branch campuses at Tri-Cities and Vancouver.

The College of Business and Economics, in cooperation with the Division of Humanities and Social Sciences, offers a joint Bachelor of Liberal Arts and a Master of Business Administration (4 & 1) Program. Students selected for this program complete a BA in liberal arts with a business core and receive guaranteed admission into the MBA Program in Business Administration, allowing them to finish the MBA in one year. Admission to the program is highly selective. For further information, students should contact the Director of Graduate Programs in Business.

Certification Requirements

Pre-Business (preBA) Major Certification Requirements. Certification requirements for the pre-business major include completion of 24 semester hours, 6 hours of which must be in Acctg 230, 231, B Law 210, Dec S 215, Econ 101, 102, Mgt 101, or MIS 150; a 2.0 cumulative g.p.a. and a 2.0 business g.p.a.

Business Administration (BA) Major Certification Requirements. To be eligible for certification as a business administration major, a student must have earned at least 60 semester hours of credit, including all of the following courses: Acctg 230, 231, B Law 210, Dec S 215, Econ 101, 102, Engl 101, Math 201, 202, MIS 150, and meet the current college/departmental g.p.a. requirements of (1) 2.5 cumulative g.p.a. and (2) 2.0 business g.p.a. or vice versa. All students are eligible to petition for the consideration of alternative criteria.

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 and Economics.

All students majoring in business administration must see their advisor and have a degree audit upon completion of 45 hours of credit. By the completion of 60 hours of credit, all students must have completed English, Math and 100-200-level CBE core courses. These required courses are Acctg 230, 231; B Law 210; Dec S 215; Econ 101, 102; Engl 101; Math 172 or 201 (Math 201 recommended); Math 171 or 202 (Math 202 recommended); MIS 101. Enrollment in 300-level CBE business courses is restricted to those students who have met these requirements and have certified as BA majors.

All students majoring in business administration must complete 50% of their course work outside of the College of Business and Economics. Nine hours of economics and 4 hours of Dec S 215 are counted as outside of the CBE to meet this 50% rule.

Residence Requirements: 1) At least 50% of
Degrees of Business

ACCOUNTING DEGREE PROGRAM (120 HOURS) ✔FYDA

The objective of the baccalaureate program with a concentration in accounting is to provide basic conceptual accounting and business knowledge as a foundation for accounting career development. This would provide preparation for careers in public, private, governmental, and non-profit accounting.

Freshman Year
First Semester
- Arts & Humanities [H,G] (GER) 3
- Ecom 101 [S] (GER) 3
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Tier I Science [Q] (GER) 3
- Biological Sciences [B] (GER) 3 or 4
- MIS 150 2
- Ecom 102 [S] (GER) 3
- Intercultural [I,G,K] (GER) 3
- Math 172 or 201 3

Sophomore Year
First Semester
- 300-400-level Engl [W] (GER) 3
- Acctg 230 3
- Physical Sciences [P] (GER) 3 or 4
- GenEd 111 [A] (GER) 3
- Math 171 [N] or 202 [N] (GER) 3 or 4
- Acctg 230 3
- Blaw 210 3

Junior Year
First Semester
- Acctg 330 3
- Acctg 335 or 338 3
- Fin 325 3
Second Semester
- Acctg 330 3
- Acctg 335 or 338 3
- Dec S 340 3
- Econ 301 3
- Mgt 301 3

Senior Year
First Semester
- Acctg 430, 431, 435, Econ 320, 340, Fin 425, or 427 3
- Acctg 433 [M] 3
- Acctg 434 3
- Soc or Psych [S,K] (GER) 3
- Tier III Capstone (GER) 3

Second Semester
- Acctg 439 [M] 3
- Acctg or General Elective 3
- B Law 410 or 411 3
- Mgt 491 or 492 3
- Pol S Elective 3

For a total of 7 hours of Biological and Physical Sciences.
1 Math 201 and 202 are strongly recommended.

BUSINESS ECONOMICS DEGREE PROGRAM (120 HOURS) ✔FYDA

Preparation for executive careers in large corporations where a broad understanding of the economy is crucial in decision making; in financial institutions, government agencies, public utilities and transportation companies, with labor unions and law firms; for careers in economic or market research and analysis. The economics field of specialization is also excellent preparation for graduate training in business, economics or law.

Freshman Year
First Semester
- Econ 101 [S] (GER) 3
- Engl 101 [W] (GER) 3
- GenEd 110 [A] or 111 [A] (GER) 3
- Tier I Science [Q] (GER) 3
- Biological Sciences [B] (GER) 3 or 4
- MIS 150 2
- Ecom 102 [S] (GER) 3
- Intercultural [I,G,K] (GER) 3
- Math 172 or 201 3

Second Semester
- 300-400-level Option Requirements 3 3
- Econ 301 or 302 3
- Soc or Psych [S,K] (GER) 3

Junior Year
First Semester
- Acctg 330 3
- Acctg 335 or 338 3
- Fin 325 3
- Acctg 430, 431, 435, Econ 320, 340, Fin 425, or 427 3
- Acctg 433 [M] 3
- Acctg 434 3
- Tier III Capstone (GER) 3

Second Semester
- Acctg 330 3
- Acctg 335 or 338 3
- Dec S 340 3
- Econ 301 3
- Mgt 301 3

For a total of 7 hours of Biological and Physical Sciences.
1 Math 201 and 202 are strongly recommended.

BUSINESS LAW DEGREE PROGRAM (120 HOURS) ✔FYDA

Preparation for careers in consulates, embassies and the State Department, in criminal justice administration, court administration, public utility administration, labor union administration, and government agency administration; also private business dealing with the foregoing.

Freshman Year
First Semester
- Arts & Humanities [H, G] (GER) 3
- Ecom 101 [S] (GER) 3
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Tier I Science [Q] (GER) 3

Second Semester
- 300-400-level Option Requirements 3 3
- Econ 102 [S] (GER) 3
- Fin 325 3
- Acctg 230 3
- Blaw 210 3

Junior Year
First Semester
- Acctg 330 3
- Acctg 335 or 338 3
- Fin 325 3
- Acctg 430, 431, 435, Econ 320, 340, Fin 425, or 427 3
- Acctg 433 [M] 3
- Acctg 434 3
- Tier III Capstone (GER) 3

Second Semester
- Acctg 330 3
- Acctg 335 or 338 3
- Dec S 340 3
- Econ 301 or 311 3
- Soc or Psych [S,K] (GER) 3

Senior Year
First Semester
- Mgt 301 3
- MIS 350 3
- Mkgt 360 3
- Econ 311 or 411 3
- Complete Writing Portfolio 3

Second Semester
- Fin 325 3
- Dec S 340 3
- Econ 401 3
- 300-400-level Option Requirements 3 3

Electives 6

BUSINESS LAW DEGREE PROGRAM (120 HOURS) ✔FYDA

Preparation for careers in consulates, embassies and the State Department, in criminal justice administration, court administration, public utility administration, labor union administration, and government agency administration; also private business dealing with the foregoing.

Freshman Year
First Semester
- Arts & Humanities [H, G] (GER) 3
- Ecom 101 [S] (GER) 3
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Tier I Science [Q] (GER) 3

Second Semester
- 300-400-level Option Requirements 3 3
- Econ 102 [S] (GER) 3
- Fin 325 3
- Acctg 230 3
- Blaw 210 3

For a total of 7 hours of Biological and Physical Sciences.
1 Math 201 and 202 are strongly recommended.

<table>
<thead>
<tr>
<th>Sophomore Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td></td>
</tr>
<tr>
<td>300-400-level Engl [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Acctg 230</td>
<td>3</td>
</tr>
<tr>
<td>Physical Sciences [P] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 171 [N] or 202 [N] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Second Semester</td>
<td></td>
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<tr>
<td>Acctg 230</td>
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<td>Physical Sciences [P] (GER)</td>
<td>3 or 4</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 171 [N] or 202 [N] (GER)</td>
<td>3 or 4</td>
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<tr>
<td>Junior Year</td>
<td></td>
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<td>First Semester</td>
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<tr>
<td>Fin 325</td>
<td>3</td>
</tr>
<tr>
<td>Mgt 301</td>
<td>3</td>
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<tr>
<td>MIS 350</td>
<td>3</td>
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<tr>
<td>Mktg 360</td>
<td>3</td>
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<tr>
<td>Elective</td>
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</tr>
<tr>
<td>Complete Writing Portfolio</td>
<td></td>
</tr>
<tr>
<td>Second Semester</td>
<td></td>
</tr>
<tr>
<td>Dec S 340</td>
<td>3</td>
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<td>4 of Group A Electives</td>
<td>12</td>
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<td>Senior Year</td>
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<tr>
<td>First Semester</td>
<td></td>
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<tr>
<td>B Law Group A Elective</td>
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<tr>
<td>Engl 302 [W], 402 [W], or 451</td>
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</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>Second Semester</td>
<td></td>
</tr>
<tr>
<td>Mgt 491 or 492</td>
<td>3</td>
</tr>
<tr>
<td>Pol S Elective</td>
<td>3</td>
</tr>
<tr>
<td>Tier III Capstone (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
</tr>
</tbody>
</table>

1 For a total of 7 hours of Biological and Physical Sciences.

2 Math 201 and 202 are strongly recommended.

3 Group A electives consist of: B Law 410, 411, 414 [M], 415 [M], 416 [M]; Com 415; Crm J 320, 381, 420 [M]; ES/UP 335 [M], 444; Phil 360; Pol S 300, 402, 404 [M], 443, three of which must be B Law.

**DECISION SCIENCE DEGREE PROGRAM (120 HOURS)**

**ENTREPRENEURSHIP DEGREE PROGRAM (120 HOURS)**

Preparation for careers in business or government in the following areas: total quality management, statistical consulting and data analysis, operations planning and management.

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities [H, G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Econ 101 [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>Tier I Science [Q] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Second Semester</td>
<td></td>
</tr>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>MIS 150</td>
<td>2</td>
</tr>
<tr>
<td>Econ 102 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural [I, G, K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 172 or 201**</td>
<td>3</td>
</tr>
</tbody>
</table>

**FINANCE DEGREE PROGRAM (120 HOURS)**

Preparation for careers in financial departments of businesses, commercial and investment banks, governmental financial agencies, and other financial institutions.

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities [H, G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Econ 101 [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>Tier I Science [Q] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Second Semester</td>
<td></td>
</tr>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Econ 102 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural [I, G, K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 172 or 201**</td>
<td>3</td>
</tr>
<tr>
<td>MIS 150</td>
<td>2</td>
</tr>
</tbody>
</table>

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**SECONDARY DEGREE PROGRAM (120 HOURS)**

Preparation for careers in business or government in the following areas: total quality management, statistical consulting and data analysis, operations planning and management.

<table>
<thead>
<tr>
<th>Sophomore Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td></td>
</tr>
<tr>
<td>300-400-level Engl [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Acctg 230</td>
<td>3</td>
</tr>
<tr>
<td>Physical Sciences [P] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 171 [N] or 202 [N] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Second Semester</td>
<td></td>
</tr>
<tr>
<td>Acctg 230</td>
<td>3</td>
</tr>
<tr>
<td>Physical Sciences [P] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 171 [N] or 202 [N] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Junior Year</td>
<td></td>
</tr>
<tr>
<td>First Semester</td>
<td></td>
</tr>
<tr>
<td>Dec S 344</td>
<td>3</td>
</tr>
<tr>
<td>Fin 325</td>
<td>3</td>
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<tr>
<td>Mgt 301</td>
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<td>MIS 350</td>
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<td>Mktg 360</td>
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<td>Complete Writing Portfolio</td>
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<tr>
<td>Second Semester</td>
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</tr>
<tr>
<td>300-400-level Econ Elective</td>
<td>3</td>
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<tr>
<td>300-400-level General Elective</td>
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<tr>
<td>Dec S 412 [M]</td>
<td>3</td>
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<tr>
<td>Dec S 340</td>
<td>3</td>
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<tr>
<td>Elective</td>
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<tr>
<td>Senior Year</td>
<td></td>
</tr>
<tr>
<td>First Semester</td>
<td></td>
</tr>
<tr>
<td>Pol S Elective</td>
<td>3</td>
</tr>
<tr>
<td>Mgt 491 or 492</td>
<td>3</td>
</tr>
<tr>
<td>Two Of: Dec S 418, 440; MIS 372 [M]</td>
<td>6</td>
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<tr>
<td>Elective</td>
<td>3</td>
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<tr>
<td>Second Semester</td>
<td></td>
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<tr>
<td>Two of: 300-400-level Business Elective</td>
<td>6</td>
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<tr>
<td>or MIS 271, 472 [M], 474</td>
<td>3</td>
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<tr>
<td>Tier III Capstone (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>6</td>
</tr>
</tbody>
</table>

1 For a total of 7 hours of Biological and Physical Sciences.

2 Math 201 and 202 are strongly recommended.

3 Math 201 and 202 are strongly recommended.

4 One from. Acctg 338, B Law 410, Ins 420 [M], MIS 372 [M], Mgt 450, 455, Mktg 478 [M] | 6 |

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**ENTREPRENEURSHIP DEGREE PROGRAM (120 HOURS)**

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

<table>
<thead>
<tr>
<th>Junior Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
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</tr>
<tr>
<td>Fin 325</td>
<td>3</td>
</tr>
<tr>
<td>Mgt 301</td>
<td>3</td>
</tr>
<tr>
<td>MIS 350</td>
<td>3</td>
</tr>
<tr>
<td>Mktg 360</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>Complete Writing Portfolio</td>
<td></td>
</tr>
<tr>
<td>Second Semester</td>
<td></td>
</tr>
<tr>
<td>300-400-level Econ Elective</td>
<td>3</td>
</tr>
<tr>
<td>Dec S 340</td>
<td>3</td>
</tr>
<tr>
<td>Fin 426</td>
<td>3</td>
</tr>
<tr>
<td>MIS 448</td>
<td>3</td>
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<tr>
<td>Soc or Psych [S, K] (GER)</td>
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</tbody>
</table>

**SECONDARY DEGREE PROGRAM (120 HOURS)**

Preparation for careers in financial departments of businesses, commercial and investment banks, governmental financial agencies, and other financial institutions.

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
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<tr>
<td>Arts &amp; Humanities [H, G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Econ 101 [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>Tier I Science [Q] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Second Semester</td>
<td></td>
</tr>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Econ 102 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural [I, G, K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 172 or 201**</td>
<td>3</td>
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<tr>
<td>MIS 150</td>
<td>2</td>
</tr>
<tr>
<td>Semester</td>
<td>First Semester</td>
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</tr>
<tr>
<td><strong>Sophomore Year</strong></td>
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<td><strong>First Semester</strong></td>
<td>300-400-level Engl [W] (GER)</td>
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<td></td>
<td>Acctg 230</td>
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<td>B Law 210</td>
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<td></td>
<td>Physical Science [P] (GER)</td>
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<td>Math 171 [N] or 202 [N] (GER)</td>
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<td>300-400-level Econ Elective</td>
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<td>400-level Business Elective</td>
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</table>

1. For a total of 7 hours of Biological and Physical Sciences.
2. Math 201 and 202 are strongly recommended.
3. Acctg 331 or 338.
4. Any approved 300- or 400-level courses in accounting, decision science, economics, finance, international business, real estate, or risk management and insurance.
5. Fin 422, 426, 428, 481

**GENERAL BUSINESS DEGREE PROGRAM (120 HOURS)**

Preparation for careers in business for the student who does not wish to specialize in any of the other options. Students looking forward to being proprietors of their own business frequently desire a general business course of study.

**Freshman Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>GenEd 110 [A] (GER)</td>
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<td>Tier I Science [Q] (GER)</td>
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**Sophomore Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>3 or 4</td>
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<tr>
<td>Econ 102 [S] (GER)</td>
<td>3</td>
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<tr>
<td>Intercultural [L,G,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 172 or 201</td>
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<tr>
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**Second Semester**

<table>
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<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>Acctg 231</td>
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<tr>
<td>B Law 210</td>
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<tr>
<td>Oral Com [C] (GER)</td>
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<tr>
<td>Soc or Psych [S,K] (GER)</td>
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**Junior Year**

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<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>Acctg 331</td>
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<td>Mgt 301</td>
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<tr>
<td>MIS 350</td>
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**Senior Year**

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<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>Acctg 331</td>
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<td>Mgt 401 [M]</td>
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<tr>
<td>Mgt 450</td>
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<tr>
<td>Elective</td>
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</table>

**HUMAN RESOURCES/PERSONNEL DEGREE PROGRAM (120 HOURS)**

Preparation for careers in personnel and industrial relations and the personnel aspects of government, service and business including: employee recruitment and selection, financial compensation systems, training and development.

**Freshman Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts and Humanities [H,G] (GER)</td>
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<tr>
<td>Econ 101 [S] (GER)</td>
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<td>Engl 101 [W] (GER)</td>
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<td>GenEd 110 [A] (GER)</td>
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<td>Tier I Science [Q] (GER)</td>
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**Second Semester**

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<tbody>
<tr>
<td>Biological Sciences [B] (GER)</td>
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<tr>
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<td>B Law 210</td>
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<td>Oral Com [C] (GER)</td>
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<tr>
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<td>Mgt 450</td>
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<td>Elective</td>
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</table>

1. For a total of 7 hours of Biological and Physical Sciences.
2. Math 201 and 202 are strongly recommended.

**INTERNATIONAL BUSINESS DEGREE PROGRAM (122 HOURS)**

Preparation for careers with multinational corporations, governmental and intergovernmental agencies both domestic and international.

Students must complete either an In Residence or a Foreign Study curriculum. This schedule is for the In Residence curriculum only. See the Director of the International Business Institute for specific information on the Foreign Study curriculum.

**Freshman Year**

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<th>First Semester</th>
<th>Hours</th>
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<td>Econ 101 [S] (GER)</td>
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**Second Semester**

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<td>Econ 102 [S] (GER)</td>
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**Sophomore Year**

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<td>Oral Com [C] (GER)</td>
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**Junior Year**

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<tr>
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<td>Elective</td>
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**Senior Year**

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<td>Elective</td>
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</table>

1. For a total of 7 hours of Biological and Physical Sciences.
2. Math 201 and 202 are strongly recommended.
管理部门

Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Tier I Science [Q] (GER) 3

Second Semester

Biological Sciences [B] (GER) 3 or 4
Econ 102 [S] (GER) 3
GenEd 111 [A] (GER) 3
Intercultural [L,G,K] (GER) 3
Math 172 or 201 3

Sophomore Year

First Semester

300-400-level Engl [W] (GER) 3
Acctg 230 3
Physical Sciences [P] (GER) 3 or 4
Math 171 [N] or 202 [N] (GER) 3 or 4
MIS 150 2

Second Semester

Acctg 231 3
B Law 210 3
Dec S 215 4
Oral Com [C] (GER) 3
Soc or Psych [S,K] (GER) 3

Junior Year

First Semester

Fin 325 3
1 Bus 380 [M] 3
Mgt 301 3
MIS 350 3
Mktg 360 3
Complete Writing Portfolio

Second Semester

300-400-level Econ 3
Dec S 340 3
Foreign Language Elective 4
Group B Elective 3
Pol S Elective 3

Senior Year

First Semester

Foreign Language Elective 4
Group A Elective 6
Elective 3

Second Semester

Group A Elective 6
Group B Elective 3
Mgt 491 or 492 3
Tier III Capstone (GER) 3

Management Information Systems 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.

Freshman Year

First Semester

Arts & Humanities [H,G] (GER) 3
Econ 101 [S] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Tier I Science [Q] (GER) 3

Second Semester

Biological Sciences [B] (GER) 3 or 4
Econ 102 [S] (GER) 3
Intercultural [L,G,K] (GER) 3
Math 172 or 201 3
MIS 150 2

Sophomore Year

First Semester

300-400-level Engl [W] (GER) 3
Acctg 230 3
Physical Sciences [P] (GER) 3 or 4
Math 171 [N] or 202 [N] (GER) 3 or 4
MIS 472 3

Second Semester

Acctg 231 3
B Law 210 3
Dec S 215 4
Oral Com [C] (GER) 3
Pol S Elective 3

Junior Year

First Semester

Fin 325 3
Mgt 301 3
MIS 350 3
Mktg 360 3
Complete Writing Portfolio

Second Semester

300-400-level Econ Elective 3
Dec S 340 3
Mgt 401 [M] 3
Soc or Psych [S,K] (GER) 3
Elective 3

Senior Year

First Semester

Mgt 491 or 492 3
Three of: Dec S 412 [M], 440 [M], 434;
MIS 448; Mgt 450, 453, 489
Elective 3

Second Semester

Mgt 483 [M] 3
Tier III Capstone (GER) 3
Two of: 400-level Mgt, 300-400-level Business,
Econ, or 300-400-level Anth, Psych, Soc
Elective 3

1 For a total of 7 hours of Biological and Physical Sciences.
2 Math 201 and 202 are strongly recommended.

Management Information Systems 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.

Freshman Year

First Semester

Arts & Humanities [H,G] (GER) 3
Econ 101 [S] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Tier I Science [Q] (GER) 3

Second Semester

Biological Sciences [B] (GER) 3 or 4
Econ 102 [S] (GER) 3
Intercultural [L,G,K] (GER) 3
Math 172 or 201 3
MIS 150 2

Sophomore Year

First Semester

300-400-level Engl [W] (GER) 3
Acctg 230 3
Physical Sciences [P] (GER) 3 or 4
Math 171 [N] or 202 [N] (GER) 3 or 4
MIS 474 3

Second Semester

Acctg 231 3
B Law 210 3
Cpt S 153 2
Dec S 215 4
300-400-level Engl [W] (GER) 3

Junior Year

First Semester

Fin 325 3
Mgt 301 3
MIS 350 3
Mktg 360 3
Complete Writing Portfolio

Second Semester

300-400-level Econ Elective 3
Dec S 340 3
Mgt 401 [M] 3
Soc or Psych [S,K] (GER) 3
Elective 3

Senior Year

First Semester

Mgt 491 or 492 3
Three of: Dec S 412 [M], 440 [M], 434;
MIS 448; Mgt 450, 453, 489
Elective 3

Second Semester

Mgt 483 [M] 3
Tier III Capstone (GER) 3
Two of: 400-level Mgt, 300-400-level Business,
Econ, or 300-400-level Anth, Psych, Soc
Elective 3

1 For a total of 7 hours of Biological and Physical Sciences.
2 Math 201 and 202 are strongly recommended.
### Marketing Degree Program (120 Hours) ![FYDA]

Preparation for careers in marketing management, sales, retail management, marketing research, brand management, and promotion.

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
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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>Tier I Science [Q] (GER)</td>
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<th>First Semester</th>
<th>Hours</th>
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<tr>
<td>Physical Sciences [P] (GER)</td>
<td>3 or 4</td>
<td></td>
</tr>
<tr>
<td>Math 171 [N] or 202 [N] (GER)</td>
<td>3 or 4</td>
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<th>First Semester</th>
<th>Hours</th>
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<td>Mktg 360</td>
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<td>Pol S Elective</td>
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<tr>
<td>Complete Writing Portfolio</td>
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<th>First Semester</th>
<th>Hours</th>
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<td>Group A Elective</td>
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<tr>
<td>Group B Elective</td>
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<td>Mktg 368</td>
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### Real Estate Degree Program (120 Hours) ![FYDA]

Preparation for careers in real estate administration, appraisal, brokerage, finance, management, marketing, production, selling, and title insurance.

<table>
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<tr>
<th>Freshman Year</th>
<th>First Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Econ 101 [S] (GER)</td>
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<td>Engl 101 [W] (GER)</td>
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</tr>
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<td>GenEd 110 [A] (GER)</td>
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<td>Tier I Science [Q] (GER)</td>
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<tbody>
<tr>
<td>Biological Sciences [B] (GER)</td>
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<tr>
<td>Physical Sciences [P] (GER)</td>
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<tr>
<td>Math 171 [N] or 202 [N] (GER)</td>
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<tr>
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<tbody>
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<td>Mktg 301</td>
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<td>MIS 350</td>
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<tr>
<td>R E 409 or Elective</td>
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<td></td>
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<tr>
<td>Complete Writing Portfolio</td>
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### Risk Management & Insurance Degree Program (120 Hours) ![FYDA]

Preparation for careers in insurance agencies, actuarial administration, claims, business risk management, investment, and underwriting.

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Math 171 [N] or 202 [N] (GER)</td>
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<tr>
<td>MIS 150</td>
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<thead>
<tr>
<th>Junior Year</th>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Fin 325</td>
<td>3</td>
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<tr>
<td>Mktg 301</td>
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<td>MIS 350</td>
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<tr>
<td>R E 409 or Elective</td>
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<tr>
<td>Complete Writing Portfolio</td>
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<tr>
<th>Senior Year</th>
<th>First Semester</th>
<th>Hours</th>
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<tr>
<td>300-400-level Econ Elective</td>
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<tr>
<td>Fin 325</td>
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<td>Ins 320</td>
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<td>Mktg 301</td>
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<tr>
<td>Mktg 360</td>
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<td>Complete Writing Portfolio</td>
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<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>300-400-level Business Elective</td>
<td>6</td>
</tr>
<tr>
<td>Dec 340</td>
<td>3</td>
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<tr>
<td>Ins 321</td>
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<tr>
<td>MIS 350</td>
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<td>3</td>
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<tr>
<td>Ins 322</td>
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<tr>
<td>Ins 420 [M]</td>
<td>3</td>
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1. For a total of 7 hours of Biological and Physical Sciences.
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; Dec S 215, 340; Econ 101, 102; 300-400-level elective; Engl 300-400 [W]; Fin 325; Math 201, 202; Mgt 301; 491 or 492; MIS 150, 350; Mktg 360; 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 electives for the first undergraduate degree. Second degree students must have completed Acctg 230, 231, B Law 210, Dec S 215, Econ 101, 102, Engl 101, Math 201, 202, and MIS 150 before enrolling in 300- 400 level business courses. Students should consult the CBE Business 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. However, there will still be no difficulty in completing them, which has been the case for many students.

Prerequisites for transfer work, as well as the courses to be transferred, must be approved by the College of Business and Economics. However, approval is not necessary for courses to be counted toward the minor requirements for minors in business specializations.

Program of Study

The following program of study is recommended for transfer students who wish to meet the MBA core requirements.

First Semester Hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Acctg 230</td>
<td>Introduction to Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>Acctg 231</td>
<td>Intermediate Accounting</td>
<td>3</td>
</tr>
<tr>
<td>215</td>
<td>Business Law</td>
<td>3</td>
</tr>
<tr>
<td>210</td>
<td>Dec S</td>
<td>3</td>
</tr>
<tr>
<td>215</td>
<td>Econ</td>
<td>3</td>
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<td>215</td>
<td>Mktg</td>
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<td>215</td>
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<td>215</td>
<td>Mktg</td>
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</tr>
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</table>

Program Requirements

- Prereq Acctg 231, 232.
- Mktg 360.
- MIS 350.
- MIS 448.
- MIS 548.
- MIS 648.
- MIS 748.
- MIS 848.

Financial Accounting

- Prereq Acctg 230.
- Mktg 360.
- MIS 350.
- MIS 448.
- MIS 548.
- MIS 648.
- MIS 748.
- MIS 848.

Managerial Accounting

- Prereq Acctg 230.
- Mktg 360.
- MIS 350.
- MIS 448.
- MIS 548.
- MIS 648.
- MIS 748.
- MIS 848.

Economic Accounting

- Prereq Acctg 230.
- Mktg 360.
- MIS 350.
- MIS 448.
- MIS 548.
- MIS 648.
- MIS 748.
- MIS 848.

Practitioner Accounting

- Prereq Acctg 230.
- Mktg 360.
- MIS 350.
- MIS 448.
- MIS 548.
- MIS 648.
- MIS 748.
- MIS 848.

International Accounting

- Prereq Acctg 230.
- Mktg 360.
- MIS 350.
- MIS 448.
- MIS 548.
- MIS 648.
- MIS 748.
- MIS 848.

Taxation and Planning

- Prereq Acctg 230.
- Mktg 360.
- MIS 350.
- MIS 448.
- MIS 548.
- MIS 648.
- MIS 748.
- MIS 848.

Management Information Systems

- Prereq Acctg 230.
- Mktg 360.
- MIS 350.
- MIS 448.
- MIS 548.
- MIS 648.
- MIS 748.
- MIS 848.

Human Resource/Personnel

- Prereq Acctg 230.
- Mktg 360.
- MIS 350.
- MIS 448.
- MIS 548.
- MIS 648.
- MIS 748.
- MIS 848.

Hotel and Restaurant Administration

- Prereq Acctg 230.
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600 Special Projects or Independent Study Variable credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Business Law

B Law

210 Law and the Legal Environment of Business 3 Fundamentals of business law; the legal system, legal reasoning and the law of contracts, torts, and agency.

410 Law and Government Regulation of Business 3 Prereq B Law 210. Legal aspects of government regulation of business; administrative law, antitrust law, and labor law.

411 Law of Business Organizations 3 Prereq B Law 210. Law of partnerships, corporations, securities regulation, secured transactions and bankruptcy; needed by CPA candidates.

414 [M] Law of Real Estate 3 Prereq B Law 210. Legal principles and precedents as they apply to the real estate environment.

415 [M] Law of International Trade 3 Prereq B Law 210. Legal organization of the international community; international aspects of trade and development, economic cooperation, and technical, social, and cultural cooperation.

416 [M] Public International Law 3 Prereq B Law 210. Law governing states, intergovernmental organizations, and nongovernmental organizations (including multinational enterprises); human rights law; environmental law; and dispute settlement.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

510 Law for the Business Manager 3 Contract, tort, constitutional and administrative law; impact of government regulation on business.

Decision Sciences

Dec S

215 Statistics 4 (3-3) Prereq Math 201. Data presentation, probability, distributions, inferences, and linear regression as applied to business and economics.

340 Operations Management 3 Prereq Dec S 215. Management of production and service operations with an emphasis on quality management; planning and control of workforce; resource allocation, and utilization.

344 Principles of Optimization 3 Same as Math 364.


417 Simulation Methods 3 Same as Math 416.

418 Quality Improvement for Management 3 Prereq Dec S 215. Total quality management as used in industries; philosophy of Deming and others, control charts, process capability analysis, team tools.


451 Business Statistical Analyses 3 Prereq admission to MBA program. Advanced preparation for graduate-level business analyses, applied finite math and statistics principles.

498 Quantitative Methods Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or non-profit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

516 Time Series 3 Prereq Dec S 515 or Stat 443. ARIMA models; identification, estimation, diagnostics, and forecasting; seasonal adjustments, outlier detection, intervention analysis and transfer function modeling.

517 Quality Improvement for Management 3 Philosophy and evolution of quality control, control charts, process capability analysis, applications.

518 Techniques of Sampling 3 Prereq Dec S 591. Sample surveys for business use; theory and application with emphasis on appropriate sample types and the estimation of their parameters.

519 Applied Multivariate Analysis 3 Prereq Dec S 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 Dec S 340. Decision analysis, linear optimization models, nonlinear models, network analysis including PERT, and dynamic programming as applied to business environment.


581 Operations Management 3 Prereq Dec S 340. Analytical approach to solving problems in production and operations management.

586 Applied Multiple Time Series Analysis 3 Prereq Dec S 516. Approaches to modeling and analysis of multiple time series.

591 Statistical Analysis for Business Decisions 3 Prereq Dec S 215, Math 201, 202. Analytical skills for decision-making; data collection and analysis, sampling, inferential, regression methodologies, experimental design, time series, forecasting analysis.

596 Doctoral Topics V 1-4 May be repeated for credit; cumulative maximum 15 hours. Advanced topics in decision sciences.

600 Special Projects or Independent Study Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Finance

Fin

323 Personal Finance 3 For nonbusiness majors. Consumer credit, financial institutions, investments, mutual funds, insurance, social security, home ownership, taxes, estate planning.

325 Finance 3 Prereq Acctg 231 or c/l; Dec S 215 or c/l; Econ 101. Financial decision making, financial strategies, investment in current and fixed assets, financial instruments, and capital markets.

409 Real Estate Finance 3 Same as RE 409.

421 Financial Institutions and Markets 3 Prereq Fin 325. Level and term structure of interest rates; characteristics of financial institutions and markets; financial futures.

422 Commerical Bank Management 3 Prereq Fin 325. Problems facing bank managers and solution techniques; asset and liability management; loan pricing; banking structure; bank regulation.


426 Entrepreneurial Finance 3 Prereq Acctg 231; Fin 325. Raising capital for new enterprises; venture capital, IPOs, debt financing, leasing and valuing start-up ventures.


481 International Finance 3 Same as I Bus 481.

498 Finance Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or non-profit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

502 Financial Management 3 Prereq Acctg 550; Econ 101. Financial management of the firm; capital budgeting, working capital management, capital acquisition, and dividend policy.

521 Interest Rates and Financial Markets 3 Prereq Fin 325. Real and nominal interest rates; bond pricing; term and risk structure of interest rates; investment and commercial banking; financial futures.


526 Problems in Financial Management 3 Prereq Fin 325. Application of financial principles to problems in financial management; credit policy, capital budgeting, leasing and mergers, cash management.

527 Investment Analysis 3 Prereq Fin 325. A decision-making approach to the problems of asset management for personal and business portfolio.

528 Portfolio Theory and Financial Engineering 3 Prereq Fin 325, 427, or 527. The theory of portfolio management and the use of derivative securities in portfolio risk management.

529 Financial Management for High Tech Firms 3 Prereq Fin 325. Application of finance principles to firms in high-tech industries; financing, risk management, capital investment, and mergers/acquisitions.

581 International Finance 3 Same as I Bus 581.

596 Doctoral Topics V 1-4 May be repeated for credit; cumulative maximum 16 hours. Advanced topics in finance.

600 Special Projects or Independent Study Variable credit. S, F grading.
702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

**Insurance**

320 Risk and Insurance 3 Prereq B Law 210; Econ 102. Types of risk and methods of protection; life, health, property, and liability insurance, principles of risk management.

321 Life Insurance and Financial Planning 3 Prereq Ins 320. Management of the life, health, and disability insurance risks facing the individual, business, and society; financial planning.

332 Property and Liability Insurance 3 Prereq Ins 320. Management of property and liability risks facing individuals and businesses; study of bonds; marine, workers compensation and unemployment insurance.


498 Insurance Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or non-profit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

530 Employee Benefits Risk Management 3 Social and group insurance and retirement plans in the context of employee benefits risk and insurance management.

600 Special Projects or Independent Study Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

**International Business**

1 Bus 375 Aspects of Sustainable Development 3 Prereq junior standing. Ecological, economical, and sociological aspects of sustainable development.

380 [M] International Business 3 International political economy; business relationships between nations; corporations and economic institutions.

415 Law of International Trade 3 Same as B Law 415.

416 [M] Public International Law 3 Same as B Law 416.

435 International Tourism 3 Same as H A 435.

436 International Accounting and Taxation 3 Same as Accctg 436.

453 Comparative International Management 3 Same as Mgt 453.

470 International Trade and Finance 3 Same as Econ 470.

471 The Economics of Regional Integration 3 Same as Econ 471.

481 International Finance 3 Prereq Fin 325; 1 Bus 380. Financial problems of multinational businesses; international financial environment, long-term capital commitment to an international venture, financial techniques for firm operation.

482 [M] International Marketing 3 Prereq 1 Bus 380; Mktg 360. Opportunities, characteristics, trends in foreign markets; alternative methods; strategies; organizational planning, control; problems of adapting American marketing concepts and methods.

492 Small Business Policy 3 Same as Mgt 492.

496 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.

498 International Business Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or non-profit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

580 International Business Management 3 Decision making in the international environment; political, cultural, and economic risk management.

581 International Finance 3 Prereq Fin 502; 1 Bus 380 or 580. 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 Variable credit. S, F grading.

**Management**

Mgt 101 Introduction to Business 3 Introduction to the practice of business with explanations of business environments, strategy, organization, functional areas, terminology, processes, tasks and ethics.

301 Principles of Management and Organization 3 Principles of management and administration aimed at improving effectiveness of all types of organizations.

315 Women in Management and Leadership 3 Same as W St 315.

401 [M] Leadership Skills for Managers 3 Prereq Mgt 301. Leadership, motivation, team building, group dynamics, interpersonal and group conflict, and job design.

450 Personnel and Human Resources Management 3 Prereq Dec S 215; Mgt 301. Policy and practice in human resource utilization, selecting, training, motivating, evaluating, and compensating employees; labor relations; EEO legislation.

453 Comparative International Management 3 Cross-cultural implications of management theories and approaches; the role of national culture in management theory and practice.

455 Staffing 3 Prereq Mgt 450 or c//. Selection issues; methods of forecasting, planning, recruitment, selection; analysis of psychometric properties of tests; techniques for assessing reliability and validity.

456 [M] Compensation Administration 3 Prereq Mgt 450 or c//. Theoretical, research, and applied issues related to the compensation of employees.


485 Seminar in Negotiations 3 Bargaining skills across a broad range of business settings; experiential work. Credit not granted for both Mgt 485 and 585.

487 Business Ethics 3 Prereq Mgt 301. The nature and sources of ethical conflicts and dilemmas individuals and organizations confront in the business context. Credit not granted for both Mgt 487 and 587.

489 Entrepreneurial Management 3 Prereq Econ 101, 102, Fin 325, Mgt 301, MIS 350, Mktg 360. Philosophy and nature of entrepreneur-ship for all business organizations; analytical, financial and interpersonal entrepreneurial skills.

491 Business Strategy and Policy 3 Prereq Dec S 340, Fin 325, Mgt 301, MIS 350, Mktg 360. Overall management of the firm; top-level decision-making and planning.

492 Small Business Policy 3 Prereq Acctg 230, B Law 210, Fin 325, Mgt 301, Mktg 360. Application of management theory and principles to small firms; applied consulting experience with operating businesses.

496 Seminar 3 May be repeated for credit.

498 Management Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or nonprofit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Management of Organizations 3 Leading, organizing, decision making, planning, controlling, conflict management, and behavior in work organizations.

582 Personnel and Human Resource Management 3 Prereq Mgt 501. Human resources and personnel administration; selection, training, compensation, performance appraisal, labor relations, health and safety, EEO legislation.

583 Organization Design 3 Development and design of contemporary systems of organization and management.

585 Graduate Seminar in Negotiations 3 Bargaining skills across a broad range of business settings; experiential work. Credit not granted for both Mgt 485 and 585.

587 Business Ethics 3 Prereq Phil 260. The nature and sources of ethical conflicts and dilemmas individuals and organizations confront in the business context. Credit not granted for both Mgt 487 and 587.

590 Strategy Formulation and Organizational Design 3 Relationship between the formulation of strategy and the selection of effective organizational structures and systems.

593 Managerial Leadership and Productivity 3 Organizational behavior and human motivation in the workplace; organization and leadership theories, studies, projects and models leading to improved productivity.

596 Doctoral Topics 3 May be repeated for credit; cumulative maximum 15 hours. Advanced topics in management.

600 Special Projects or Independent Study Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.
Management Information Systems

MIS

150 Technological Survival Skills for Today's Manager 2 (1-2) Prereq Cpt S 105 or successful completion of MIS 150 entrance exam. Application of management information systems technology to solve typical management and business problems.

153 BASIC Programming 2 Same as Cpt S 153.

271 Applications Program Development 3 Top-down program design, structured programming techniques, and program testing, using COBOL language.

350 Management Information Systems 3 Prereq Cpt S 105. Management information systems foundations; current trends; MIS technology fundamentals; applications to business functions and management practice.


375 Electronic Commerce and the Internet 3 Prereq MIS 350. Capabilities of the Internet to support and enable electronic commerce; effective design and implementation; managerial issues.

448 Strategic Information Technology Management 3 Prereq Mgt 301, MIS 350. Information problems, management of the information resource, uses of computer-based systems to improve management decision-making.

472 [M] Systems Analysis and Design 3 Prereq MIS 372; two of Cpt S 150, Cpt S 153, MIS 271. The application of systems analysis and design to the development of information systems; systems development life cycle.

474 Telecommunications and Networking in Business 3 Prereq MIS 350. Data communications; infrastructure, and protocols; network topologies and management; business applications of communication technologies.

498 Management Information Systems Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or nonprofit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

507 Computers and Systems for Managers 3 Data base concepts, management information systems, design of application programs, and computer concepts.

572 Database Management Systems 3 Prereq admission to MBA program. Database management, data modeling, system design and implementation; the application of DBMS technologies to organizational and business problems.

574 Business Telecommunications and Electronic Commerce 3 Prereq admission to MBA program. Data communications fundamentals and their application to the design and implementation of electronic commerce systems.

580 Information Systems Management 3 Data processing organization; operations, application development, computer selection, management of computer personnel and systems.

Marketing

Mktg

327 Services/Nonprofit Marketing 3 Marketing applications in the service sector. Cooperative course taught by UI (Bus 327), open to WSU students.

360 Marketing 3 Functions, methods, and middlemen used in marketing the principal types of goods; price policies, cost of marketing; government regulation.

368 Marketing Research 3 Prereq Dec S 215; Mktg 360. Survey and experimental methods as they relate to marketing research.

460 [M] Marketing Management 3 Prereq Mktg 360; 6 hours Mktg. Analysis of marketing policy; approaches to solution of marketing problems.


467 Consumer Behavior 3 Prereq Mktg 360. The investigation of social-psychological phenomena affecting consumer decision processes; learning theory and communication.

468 Public Policy and Marketing 3 Prereq Mktg 360. Productivity and efficiency in marketing; government regulation of marketing structure and of marketing policies and practices; consumer protection and welfare.

470 Retail Management 3 Prereq Mktg 360. Retailing system; organization, merchandising models, pricing, promotion, location, and control procedures; management decision processes.

477 Promotion Management 3 Prereq Mktg 360. Text and case approach to integrating promotion into the marketing plan; methods, organization, communications, media selection, and campaigns.

478 [M] Sales Management 3 Prereq Mktg 360. The role of selling in the marketing mix; problems in planning, organizing, evaluating and controlling the sales force.


499 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.

497 Marketing Yourself 1 Career opportunity assessment, position research, resume, application letter, interviewing skills, motivation, attitudes for success, solicitation and assessment of others.

498 Marketing Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or nonprofit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

505 Survey of Marketing 3 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 Marketing management and administrative policies as they relate to concepts, strategies, and decision making.

560 Research Methodology 3 Prereq Dec S 215. Types of data needed and available, collection and analysis of data as they relate to decisional research.

561 Technology and New Product Marketing 3 Prereq Mktg 360. Introduction of new products that are based on new technology; exploration of actual products in the market.

565 Seminar in Marketing 3 May be repeated for credit; cumulative maximum 9 hours. Marketing structure and behavior from economic and behavioral perspectives; social evaluation and behavioral implications of marketing strategy.

567 Consumer Behavior Theory 3 Prereq Mktg 505. Theory in consumer and buyer behavior; conceptual and empirical research role of purchase and consumption behavior on society and marketing.

596 Doctoral Topics 3 May be repeated for credit; cumulative maximum 15 hours. Advanced topics in marketing.

600 Special Projects or Independent Study Variable credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Real Estate

RE

305 Real Estate 3 or 4 Prereq B Law 210; Econ 102. Relationships between location and value; patterns of urban land use; legal, financial, and organizational framework of the real estate business.

405 [M] Real Estate Valuation 3 Prereq Fin 325; RE 305. Principles and practices of real property valuation; factors affecting real property values and income; appraisal and location theory.

406 Real Estate Administration 3 Prereq RE 305. The case method of analyzing management policies, practices, and decision making in real estate firms.

407 Real Estate Investments 3 Prereq Fin 325; RE 305. Instruments, techniques, and institutions of real estate investment; forms of ownership, tax law, decision-making tools and applications.

408 Valuation of Income Property 3 Prereq Fin 325; RE 405. Appraisal of commercial, industrial, retail and multi-family properties; analysis of business values, construction costs and discounted cash flow analysis.

409 Real Estate Finance 3 Prereq Fin 325. Analysis of primary and secondary mortgage markets, financing techniques, mortgage securities, mortgage risk, and real estate portfolios.

498 Real Estate Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or nonprofit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

522 Advanced Topics in Real Estate 3 Basic forces that motivate and affect investors in their use and possession of real estate.

600 Special Projects or Independent Study Variable credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

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Department of 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 may also find rewarding work in plant operation, plant management, university teaching, sales-service, and other functions requiring chemical engineering training. The curriculum in chemical engineering in the College of Engineering is accredited by the Accreditation Board for Engineering and Technology (ABET).

The total number of majors in the department is restricted at the junior level.

The department offers courses of study leading to the degrees of Bachelor of Science in Chemical Engineering, Master of Science in Chemical Engineering, and Doctor of Philosophy.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

The Bachelor of Science degree in Chemical Engineering requires a total of 138 semester hours. At least 68 of the total hours required for this degree must be in 300-400-level courses.

CHEMICAL ENGINEERING DEGREE PROGRAM (138 HOURS)

**Freshman Year**

<table>
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<tr>
<th>First Semester</th>
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<tbody>
<tr>
<td>Chem 105 [P] (GER)</td>
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**Second Semester**

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**Sophomore Year**

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**Second Semester**

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<td>Ch E 298</td>
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<td>E E 304</td>
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<td>Complete Writing Portfolio</td>
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**Second Semester**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Ch E 301</td>
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<td>Chem 333</td>
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**Senior Year**

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<tbody>
<tr>
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<tr>
<td>Ch E 432</td>
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</tr>
<tr>
<td>Ch E 441</td>
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</tr>
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<td>Ch E 450</td>
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<td>Ch E 498</td>
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**Second Semester**

<table>
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<td>Ch E 433 [M]</td>
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<td>Ch E 451 [M]</td>
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<td>Ch E 498</td>
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<tr>
<td>Ch E Elective</td>
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<tr>
<td>Ch E Elective</td>
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</tbody>
</table>

1. Choose from: Math 360, 375, 415, 430, 440, 441, 443, or 448.
2. Any course from an engineering department other than chemical engineering is acceptable with the exception of the following courses: BSysE 110, 120, 210, 310, 441, C E 120, 174, 201, 462, 463, 464, 471, 480; E E 110, 120, 380; MSE 110, 120, 309, 450; M E 103, 120, 301, 313. Chemical engineering courses may be used to satisfy this requirement (but can not be counted as a Chemical Engineering Elective as well) as long as a course from an engineering department other than Chemical Engineering is taken as a technical elective. 3. Must be approved by advisor prior to enrollment in the class.

Transfer Students

Students who are planning to transfer to Chemical Engineering at Washington State University from other institutions should coordinate their programs with the department chair to establish a schedule of studies leading to the bachelor’s degree. This is desirable because of sophomore professional requirements and course sequences. A strong preparation in chemistry, mathematics, and physics is necessary prior to transfer to minimize the time required at Washington State University to complete bachelor’s degree requirements. Inquiries concerning specific questions are welcomed. Since there is a restriction on the total number of majors in the department, transfer students should make application for admission as soon as possible.

Preparation for Graduate Study

As preparation for work toward an advanced degree, a student should have completed substantially the equivalent of the above schedule of studies. A Bachelor of Science degree in Chemical Engineering from an institution accredited by ABET normally will satisfy this requirement.

Special programs are also available for students with bachelor’s degrees in chemistry or other areas of science who wish to obtain the Master of Science degree in Chemical Engineering.

Description of Courses

Chemical Engineering

Ch E 201 Chemical Process Principles and Calculations 3 Prereq Chem 106; Math 172. Fundamental concepts of chemical engineering; problem-solving techniques and applications in stoichiometry, material and energy balances, and phase equilibria.

Ch E 211 Process Simulation 3 Prereq Chem 106; Math 172; Math 315 or Ch E. Computer solutions to problems in chemical engineering processing.

Ch E 298 Technical Seminar 1 May be repeated for credit; cumulative maximum 2 hours. S, F grading.

Ch E 301 Chemical Engineering Thermodynamics 3 Prereq Ch E 201; Chem 331 or Ch E. Basic concepts and laws; property relationships; compression and liquefaction; phase equilibria; reaction equilibria; applications in stagewise processing.

Ch E 310 Introduction to Transport Processes 3 Prereq Ch E 201; Math 315 or Ch E. Fundamentals of the phenomena governing the transport of momentum, energy, and mass.

Ch E 421 Kinetics and Reactor Design 3 Prereq 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 3 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 3 Prereq Ch E 310, 332 or c/o. Design and evaluation of equipment used in continuous contacting.

398 Technical Seminar 1 May be repeated for credit; cumulative maximum 2 hours. S, F grading.

418 Materials Processing 3 Prereq Ch E 334; Chem 106, 331; Ch E major. Processing of polymeric and ceramic materials; corrosion prevention and materials selection.

432 [M] Chemical Engineering Lab I 3 (1-6) Prereq Ch E 321, 332, 334. Statistical design and analysis of experiments; safety; experiments in heat and mass transfer; separations, other unit operations, kinetics, control; report writing.

433 [M] Chemical Engineering Lab II 2 (0-6) Prereq Ch E 432. Laboratory experiments in heat and mass transfer; separations, other unit operations, kinetics, control; design calculations and report writing.

450 Chemical Process Analysis and Design I 3 Prereq Ch E 301, 332, 334. Chemical engineering design; computer tools; safety and environmental constraints; cost and equipment optimization.


461 Introduction to Nuclear Engineering 3 Same as M E 461.

465 Integrated Environchemical 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 biological processes in the human body.

487 Food Process Engineering Design 3 Same as BSysE 482.

495 Chemical Engineering Internship 2 May be repeated for credit; cumulative maximum 4 hours. Students work full time in engineering assignments in approved industries with prior approval of advisor and industrial supervisor. S, F grading.

496 Cooperative Education Internship V 2-4 May be repeated for credit; cumulative maximum 4 hours. Off-campus Cooperative Education Internship with business, industry, or government unit. S, F grading.

498 Technical Seminar 1 May be repeated for credit; cumulative maximum 2 hours. For juniors and seniors in Ch E. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

510 Transport Processes 3 Transport of mass, energy, and momentum; unsteady and steady states as applied to chemical processing; macroscopic and microscopic analyses. Cooperative course taught jointly by WSU and UI (ChE 515).

515 Convective Heat Transfer 3 Same as M E 515.

523 Basic Concepts in Catalysis 3 (2-3) Preparation and characterization of supported heterogeneous catalysts, mechanistic interpretation of surface reactions and chemisorption, deactivation, and kinetics from lab experiments. Cooperative course taught by WSU, open to UI students (ChE 523).

525 Polymer Reaction Engineering 3 Prereq Ch E 321. Reaction engineering applied to polymerization reactions; effects on polymerization rate, molecular weight, and copolymer composition. Cooperative course taught by WSU, open to UI students (ChE 524).

526 Microscopic Thermodynamics 3 Same as M E 526.

527 Macroscopic Thermodynamics 3 Same as M E 527.

529 Chemical Engineering Kinetics 3 Interpretation of kinetic data and design of nonlinear 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 applications.

546 Mass Transfer Operations 3 Diffusion and equilibrium operations. Cooperative course taught jointly by WSU and UI (ChE 546).

551 Discrete Digital Control 3 (2-3) Prereq Ch E 441. Design and implementation of digital control algorithms; Z-transforms; state space methods. Cooperative course taught by WSU, open to UI students (ChE 551).

552 Process Optimization 3 Fundamentals associated with the optimization of chemical process plants.

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).

571 Advanced Plant Design 2 or 3 Design of process plants for optimum cost and economic return; scale-up of pilot plants. Cooperative course taught by the UI (ChE 571), open to WSU students.

574 Protein Biotechnology 3 Same as BC/BP 574.

581 Advanced Topics in Chemical Engineering 3 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.

598 Research Seminar 1 May be repeated for credit. Seminar presentations on current topics in chemical engineering research. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

702 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Department of Chemistry


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 or biochemistry prepares you for a variety of careers in industry, education, ecology, 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 faculty and facilities by beginning research projects as early as possible. Research expands experience beyond the classroom into the realm of new knowledge. Typical areas for research are: Analytical chemistry, which 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.
Department of Chemistry

Environmental chemistry, which 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, which has as its center the study of the vast majority of the known elements, includes investigations into the mechanisms of electron transfer in complex materials. It is closely related to bioinorganic chemistry which includes the study of metal containing proteins by advanced nuclear resonance techniques and investigations of the role of oxidizers in biological processes.

Materials chemistry, which 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, which deals with the many compounds of carbon. It includes the study of compounds which include metals such as boron, iron, copper and lithium, and it has application to the synthesis of biologically important compounds such as unusual nucleic acids.

Physical chemistry, which applies the methods and theories of physics to the study of chemical materials. It involves theoretical studies of chemical bonding using advanced computer methods and the investigation of the structures of solids and surfaces by a variety of instrumental methods including light absorption and emission, X-ray techniques, and surface characterization.

The department is on the approved list of the American Chemical Society.

The department offers courses of study leading to the degrees of Bachelor of Science in Chemistry, with options in materials chemistry and environmental chemistry, Master of Science in Chemistry, Master of Arts in Chemistry, and Doctor of Philosophy (Chemistry).

The Department of Chemistry offers a program leading to both a Bachelor of Science and Master of Science in Chemistry within a period of five years. Students wishing to enroll in the program must declare their intentions at the end of the junior year and begin research for the MS thesis while still undergraduates. The program is designed so that the BS degree will normally be awarded at the end of four years and the MS approximately 15 months later. In order to enter this program the student’s undergraduate record must show that the final transcript will satisfy the requirements for admission to the WSU Graduate School. Further information on this program can be obtained from the Department of Chemistry.

A student beginning undergraduate work will begin the study of chemistry with Chem 101, 105 or 115, depending on preparation. In order to take most courses in chemistry above the 100-level, the student must complete one of the following sequences: Chem 101, 105 and 106; 101, 102, and 106; 105 and 106; 115 and 116.

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.

Minor in Chemistry

Completion of a minor in chemistry requires at least 17 hours from 200-level and above chemistry courses. Three hours from BC/BP 364, 366, 563, or 564 and up to 2 hours of Chem 499 may be used to satisfy this requirement.

LAB CHARGES

A charge for expendable laboratory supplies is made in each laboratory course.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

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

A student undertaking this curriculum after the beginning of the freshman year should consult with the department undergraduate coordinator to arrange a schedule which will permit completion of required courses in proper sequence. Course sequencing is particularly important in this option for physical chemistry (Chem 331 and 332). Calculus through multivariable calculus (Math 273) and calculus-based physics (Phys 201 and 202) are essential preparation for physical chemistry. This curriculum leads to a degree for which students will be certified to the American Chemical Society.

GENERAL CHEMISTRY OPTION (120 HOURS) ✔FYDA

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<th>Freshman Year</th>
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<td>First Semester</td>
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<td>Chem 105 [P] (GER) or 115</td>
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Senior Year

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<td>Chem Electives</td>
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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 Offered alternate years only. Students may take this course during the second semester of their junior year.

3 Electives must include 3 hours of advanced chemistry courses based on physical (Chem 332) or organic (Chem 340) chemistry. The following chemistry courses meet this requirement: Chem 405, 415, 421, 430, 461, 480, 481, 482, as does any 400-level chemistry course. One Math or Physics course requiring calculus may be substituted for this course. Students should consult the associate chair regarding the selection of a Math or Physics course to satisfy this requirement.

ENVIRONMENTAL CHEMISTRY OPTION (122 HOURS) ✔FYDA

Students completing this curriculum will not be certified to the American Chemical Society. Students wishing to be certified to the American Chemical Society with a specialization in environmental chemistry should take Chem 481 and 482 as electives in the curriculum above and should take 3 hours of biology or geology beyond that specified above.

<table>
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<th>Freshman Year</th>
<th>Hours</th>
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90
Second Semester

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Sophomore Year

First Semester

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<tbody>
<tr>
<td>Chem 240</td>
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<td>ES/RP 101 [B] (GER)</td>
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<td>Math 140 [N] (GER)</td>
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<tr>
<td>Phys 101 [P] (GER)</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
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Second Semester

<table>
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<tr>
<td>Chem 220</td>
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<td>Chem 222</td>
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<td>GenEd 111 [A] (GER)</td>
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<td>NATRS 303</td>
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<td>Phys 102 [P] (GER)</td>
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Junior Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
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<tr>
<td>Chem 338</td>
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<tr>
<td>Chem 398</td>
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<tr>
<td>Science Electives</td>
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<td>Complete Writing Portfolio</td>
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Second Semester

<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>
<tr>
<td>Social Sciences [S,K] (GER)</td>
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<tr>
<td>Chem 481 [M]</td>
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<td>ES/RP 335</td>
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<td>Science Electives</td>
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Senior Year

First Semester

<table>
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<th>Course</th>
<th>Hours</th>
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<tr>
<td>Chem 425</td>
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<td>Chem 426</td>
<td>2</td>
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<tr>
<td>Chem 416</td>
<td>2</td>
</tr>
<tr>
<td>Chem 489</td>
<td>2</td>
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<tr>
<td>Science Electives</td>
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<tr>
<td>Tier III Capstone (GER)</td>
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Second Semester

<table>
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<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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<tr>
<td>Chem 401</td>
<td>3</td>
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<tr>
<td>Chem 415</td>
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</tr>
<tr>
<td>Chem 416</td>
<td>2</td>
</tr>
<tr>
<td>Chem 489</td>
<td>2</td>
</tr>
<tr>
<td>Science Electives</td>
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</tbody>
</table>

Preparation for Graduate Study

As preparation for work toward an advanced degree, it is expected that the student shall have completed courses totaling 40 semester hours of chemistry including inorganic, qualitative, quantitative, organic, and physical chemistry. The student should also present 8 hours of physics, mathematics through calculus, and have a reading knowledge of scientific German, French or Russian.

It is desirable that students interested in inorganic, analytical, organic, or physical chemistry present advanced courses in chemistry, computer science, mathematics, or physics; advanced biological science courses are important preparation for students who propose to undertake graduate study in the field of biochemistry.

Biochemistry

For course descriptions and schedule of studies in biochemistry, see Department of Biochemistry and Biophysics.

Description of Courses

General and Inorganic Chemistry

Chem

101 [P] Introduction to Chemistry 4 (3-3) Prereq math placement beyond Math 101 or c/l in 101. Basic chemical concepts; atomic theory, periodicity, reaction stoichiometry, gases, solutions, acids, bases, pH, equilibrium, kinetics, energy, applications to life sciences.


105 [P] Principles of Chemistry 14 (3-3) Prereq one year high school chemistry or Chem 101; Math 107 or c/l. Stoichiometry, structure, gases, liquids, solids, solutions, thermodynamics, kinetics, equilibrium, volumetric, and gravimetric analysis. Credit not granted for both Chem 105 and 115.

106 [P] Principles of Chemistry II 14 (3-3) Prereq Chem 105 or 115; Math 107 or higher placement. Acid-base, ionic, molecular, solubility, oxidation/reduction equilibria; kinetics, electrochemistry; systematic chemistry of the elements; coordination compounds. Credit not granted for both Chem 106 and 116.

115 Chemical Principles Honors I 4 (3-3) Prereq one year high school chemistry; Math 107 or c/l. Topics as for Chem 105, enriched by special lectures and demonstrations. For students with adequate background in science and mathematics. Credit not granted for both Chem 115 and 105.


150 [Q] Molecules and Science 3 (2-3) Chemical basis and molecular structure of everyday materials; polymers, medicines, etc.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Prerequisites</th>
<th>Credits</th>
<th>Notes</th>
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<tr>
<td>410</td>
<td>Modern Inorganic Chemistry</td>
<td>3 PreReq Chem 332 or c/l.</td>
<td>3</td>
<td>Properties of substances; periodic systems; oxidation-reduction and acid-base characteristics interpreted on the basis of atomic and molecular structure.</td>
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<tr>
<td>410</td>
<td>Modern Inorganic Chemistry</td>
<td>3 PreReq Chem 332 or c/l.</td>
<td>3</td>
<td>Properties of substances; periodic systems; oxidation-reduction and acid-base characteristics interpreted on the basis of atomic and molecular structure.</td>
</tr>
<tr>
<td>501</td>
<td>Advanced Inorganic Chemistry II</td>
<td>3 Rec Chem 501.</td>
<td>3</td>
<td>May be repeated for credit. Rec Chem 501. Recent significant developments. Cooperative course taught by WSU, open to UI students (Chem 503).</td>
</tr>
<tr>
<td>504</td>
<td>Organometallic Chemistry</td>
<td>3 PreReq Chem 501. Structure, bonding, and reaction chemistry of organotransition metal compounds; applications to homogenous catalysis. Cooperative course taught by UI (Chem 568), open to WSU students.</td>
<td>2</td>
<td>Credit not granted for both Chem 427 and 527.</td>
</tr>
<tr>
<td>505</td>
<td>Topics in Coordination Chemistry</td>
<td>3 Rec Chem 501. Principles, complex ions and coordination compounds; theory of acids and bases; bonding theory, nonaqueous solvent; familiar elements; periodicity. Cooperative course taught by UI (Chem 564), open to WSU students.</td>
<td>1</td>
<td>Open to WSU students.</td>
</tr>
<tr>
<td>506</td>
<td>Inorganic Chemistry V</td>
<td>1-3 Rec Chem 501. Coordination compounds; halogens; less familiar elements; cathate, interstitial, nonstoichiometric compounds; chemical bonding; inorganic reaction mechanisms. Cooperative course taught by UI (Chem 565), open to WSU students.</td>
<td>1</td>
<td>Experimental counterpart of Chem 427; additional requirements. Credit not granted for both Chem 481 and 515.</td>
</tr>
<tr>
<td>512</td>
<td>Bioanalysis</td>
<td>2 Rec Chem 220 or 425. Methods for the measurement of biological compounds.</td>
<td>2</td>
<td>Credit not granted for both Chem 427 and 527.</td>
</tr>
<tr>
<td>514</td>
<td>Mass Spectrometry</td>
<td>2 PreReq Chem 425. Current methods, techniques and interpretation of mass spectrometric analysis.</td>
<td>2</td>
<td>Credit not granted for both Chem 481 and 515.</td>
</tr>
<tr>
<td>515</td>
<td>Trace Element Analysis</td>
<td>2 Graduate-level counterpart of Chem 415; additional requirements. Credit not granted for both Chem 415 and 515.</td>
<td>2</td>
<td>Continuation of Chem 415; additional requirements. Credit not granted for both Chem 415 and 527.</td>
</tr>
<tr>
<td>516</td>
<td>Trace Organic Analysis</td>
<td>2 Graduate-level counterpart of Chem 416; additional requirements. Credit not granted for both Chem 416 and 516.</td>
<td>2</td>
<td>Cooperative course taught by UI (Chem 566), open to WSU students.</td>
</tr>
<tr>
<td>517</td>
<td>Chromatography</td>
<td>2 PreReq Chem 425.</td>
<td>2</td>
<td>Cooperative course taught by UI (Chem 565), open to WSU students.</td>
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<tr>
<td>518</td>
<td>Electrochemistry</td>
<td>2 PreReq Chem 425.</td>
<td>2</td>
<td>Cooperative course taught by UI (Chem 565), open to WSU students.</td>
</tr>
<tr>
<td>520</td>
<td>Analytical Chemistry</td>
<td>3 PreReq Chem 416. Additional requirements. Credit not granted for both Chem 520 and 515.</td>
<td>3</td>
<td>Credit not granted for both Chem 416 and 516.</td>
</tr>
<tr>
<td>521</td>
<td>Radiochemistry and Radiotracers</td>
<td>2 Graduate-level counterpart of Chem 421; additional requirements. Credit not granted for both Chem 421 and 521.</td>
<td>2</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
</tr>
<tr>
<td>522</td>
<td>Radiochemistry and Radiotracers</td>
<td>1 (0-3) PreReq Chem 222, 331; Phys 202.</td>
<td>3</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
</tr>
<tr>
<td>523</td>
<td>Radiochemistry Laboratory</td>
<td>1 (0-3) PreReq Chem 222, 331; Phys 202.</td>
<td>2</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
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<tr>
<td>524</td>
<td>Activation Analysis</td>
<td>2 (1-3) PreReq Chem 331 or 421. Credit not granted for both Chem 424 and 524.</td>
<td>3</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
</tr>
<tr>
<td>525</td>
<td>Quantitative Instrumental Analysis</td>
<td>2 PreReq Chem 332 or c/l, or Chem 336 or c/l. Computer interfacing applicable to chemical instrumentation; principles and applications of modern chromatography, spectrophotometry and electrochemical techniques.</td>
<td>2</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
</tr>
<tr>
<td>526</td>
<td>Quantitative Instrumental Analysis Laboratory</td>
<td>2 (0-6) PreReq Chem 425 or c/l. Laboratory experience in modern analytical methods.</td>
<td>2</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
</tr>
<tr>
<td>527</td>
<td>Environmental Chemistry</td>
<td>2 PreReq Chem 331. Natural water chemistry, organic processes, kinetics, thermodynamics, modelling in lake, river, and sea water. Credit not granted for both Chem 427 and 527.</td>
<td>2</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
</tr>
<tr>
<td>528</td>
<td>Environmental Chemistry</td>
<td>3 PreReq Chem 481 and 515.</td>
<td>3</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
</tr>
<tr>
<td>529</td>
<td>Selected Topics in Analytical Chemistry</td>
<td>1-3 May be repeated for credit. Selected current developments. Cooperative course taught by WSU, open to UI students (Chem 525).</td>
<td>1</td>
<td>Experimental counterpart of Chem 427; additional requirements. Credit not granted for both Chem 481 and 515.</td>
</tr>
<tr>
<td>530</td>
<td>Problem Solving in Physical Chemistry</td>
<td>1 PreReq Chem 106 or 116; Math 172. Quantitative methods of data analysis and chemical concept development; emphasis on multivariable, matrix, and computer methods.</td>
<td>3</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
</tr>
<tr>
<td>531</td>
<td>Physical Chemistry</td>
<td>3 PreReq Math 172; Phys 202; c/l in Chem 333. Concepts of physical chemistry; basic thermodynamics; free energy and entropy; phase equilibria; properties of solutions of electrolytes and non-electrolytes.</td>
<td>3</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
</tr>
<tr>
<td>532</td>
<td>Physical Chemistry</td>
<td>3 PreReq Chem 331. Elementary quantum theory; molecular structure and spectra; bonding theory; reaction rates; photochemistry and radiation chemistry; energy states and statistical thermodynamics.</td>
<td>3</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
</tr>
<tr>
<td>533</td>
<td>Physical Chemistry Laboratory</td>
<td>1 (0-3) PreReq Chem 331 or c/l. Experiments selected to meet the individual needs of students in BC/BP, Bio S, C E, Chem, or MSE.</td>
<td>1</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
</tr>
<tr>
<td>534</td>
<td>Physical Chemistry Laboratory</td>
<td>1 (0-3) PreReq Chem 332 or c/l, 333. Continuation of Chem 333. Experiments in molecular structure, atomic molecular spectroscopy, chemical kinetics.</td>
<td>1</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
</tr>
<tr>
<td>536</td>
<td>Classical Physical Chemistry</td>
<td>2 PreReq Chem 331. Concepts and applications of classical physical chemistry; transport and kinetic properties; electrochemistry; colloids; polymers and macromolecules.</td>
<td>2</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
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<tr>
<td>538</td>
<td>Environmental Physical Chemistry</td>
<td>3 PreReq Chem 220, 222, Math 140. Physical chemistry for students in the environmental and biological sciences; emphasis on results and applications of physical chemical principles.</td>
<td>3</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
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<tr>
<td>540</td>
<td>Applied Spectroscopy</td>
<td>2 PreReq Chem 332. Theory and practice of photon- and electron-based spectroscopic techniques.</td>
<td>2</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
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<tr>
<td>541</td>
<td>Atomic and Molecular Physics</td>
<td>3 PreReq Chem 332, Math 273. Basic concepts of atomic structure and spectroscopy; quantum mechanics of atomic phenomena. Credit not granted for both Chem 461 and 516.</td>
<td>3</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
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<tr>
<td>540</td>
<td>Solid State Chemistry</td>
<td>3 PreReq Chem 332. Properties, bonding and synthesis of solid state material; crystalline and amorphous solids and coatings.</td>
<td>3</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
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<tr>
<td>559</td>
<td>Chemical Group Theory</td>
<td>3 Rec Chem 332. Mathematical definitions of groups and representations, applications to chemical structure and spectra, ligand field theory, chemical reactions and selection rules.</td>
<td>3</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
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<tr>
<td>531</td>
<td>Advanced Physical Chemistry</td>
<td>3 Rec Chem 332. Physical chemistry; quantum mechanics, thermodynamics, chemical bonding, and electrochemistry.</td>
<td>3</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
</tr>
<tr>
<td>532</td>
<td>Advanced Physical Chemistry</td>
<td>3 Rec Chem 332. Methods of quantum chemistry, atomic and molecular structure and spectra, chemical bonding, statistical mechanics, and kinetic theory, chemical kinetics.</td>
<td>3</td>
<td>Cooperative course taught by WSU, open to UI students (Chem 525).</td>
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</table>
534 Chemical Statistical Mechanics 3 Rec Chem 531, 532. Statistical theory of thermodynamic variables and chemical equilibrium; calculation of equilibrium properties from spectral data; fluctuations about equilibirum; quantum statistics.


536 Quantum Chemistry 3 Rec Chem 332 or 531. Quantum mechanics applied to chemical systems: states of atoms and molecules, transitions and spectra.

537 Advanced Topics in Physical Chemistry V 1-3 May be repeated for credit. Selected subjects; irreversible thermodynamics; chemical bonding; NMR; ligand field theory; x-ray diffraction; neutron diffraction. Cooperative course taught by WSU, open to UI students (Chem 537).

561 Atomic and Molecular Physics 3 Graduate-level counterpart of Chem 461; additional requirements. Credit not granted for both Chem 461 and 561.

564 Atomic and Molecular Phenomena 3 Rec Chem 461, 509; Phys 450. Phenomena which yield information on structures, energy levels, and interactions of molecules in solid, liquid, and gaseous phases.

Organic Chemistry


341 Organic Chemistry Laboratory 2 (0-6) Prereq Chem 340.

342 Organic Chemistry 3 Prereq Chem 340; Rec Chem 341 or c//. Continuation of Chem 340.

343 Organic Chemistry Laboratory 2 (0-6) Prereq Chem 342 or c//.

540 Organic Reaction Mechanisms 3 Rec Chem 331, 342. The major classes of organic reaction mechanisms and their significance; kinetics and introductory theory.


544 Advanced Topics in Organic Chemistry V 1-3 May be repeated for credit. Rec Chem 540. Current research in organic chemistry. Cooperative course taught by WSU, open to UI students (Chem 544).

545 Spectroscopic Identification of Organic Compounds V 1-3 May be repeated for credit; cumulative maximum 3 hours. Rec Chem 342. Structural interpretation of 1H and 13C NMR, vibrational and mass spectra of organic compounds; audio-tutorial.

Chemistry for Teachers

Chem 411 General Chemistry from an Advanced Point of View 3 Prereq one year chemistry. Quantitative aspects of chemistry; first law of thermodynamics, solution theory, equilibrium, kinetics; electrochemistry and redox reactions; inquiry and problem solving.

413 Lab Preparations, Methods and Management 2 (0-6) Prereq one year Chem. Synthesis, analysis, and reactivity; reactions and methods appropriate for high school; microscale chemistry; time-saving techniques, inventory control, safety and disposal.

419 Physical Foundations of General Chemistry 1 Prereq Chem 411 or one year general chemistry; for preselected teachers. Physical basis of general and biophysical chemistry.

456 Lecture Demonstrations and Their Uses 1 (0-5) Prereq Chem 411, 413; for preselected teachers. Developments, methods and utilization of lecture demonstrations for secondary chemistry teachers.

505 Molecular Basis of Modern Materials and Devices 2 Prereq Chem 411; for preselected teachers. Atomic and molecular structure; the solid state; materials science; transition metals and coordination complexes.

506 Industrial Practice in Chemistry 5 Prereq Chem 519; for preselected teachers. Industrial practice for secondary chemistry teachers who are candidates for the MA degree in chemistry.

519 Analytical Methods and Instrumentation 3 (1-6) For preselected teachers. Analytical methods and instruments, their fundamental basis and applications to educational and industrial practice.


585 Survey of Biophysical Chemistry 3 Prereq BC/BP 572, Chem 419; for preselected teachers. Connection between structure and properties of biomolecules and methods of investigation.

Problems, Seminar, Research, and Thesis

Chem 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.

398 Undergraduate Seminar 1 Rec BC/BP or Chem major. S, F grading.

491 Cooperative Education Internship V 2-5 May be repeated for credit; cumulative maximum 16 hours. Off-campus internship with business, industry, or government unit coordinated through the Professional Experience Program. S, F grading.

495 Directed Research V 1-3 Prereq Chem 334 or c//. May be repeated for credit. Introduction to research and advanced laboratory methods; practice in written and oral scientific communication.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

555 Special Topics V 1-4 May be repeated for credit. Workshop in teaching methods in chemistry.

590 Introduction to Research Topics 1 Presentation and description of research areas and projects of current interest to faculty.

591 Seminar in Inorganic Chemistry 1 May be repeated for credit. Presentation and discussion of topics in inorganic chemistry taken from research in progress or current literature.

592 Seminar in Analytical Chemistry 1 May be repeated for credit; cumulative maximum 6 hours. Presentation and discussion of topics in analytical chemistry taken from research in progress or current literature.

593 Seminar in Physical Chemistry 1 May be repeated for credit; cumulative maximum 6 hours. Presentation and discussion of topics in physical chemistry taken from research in progress or current literature.

594 Seminar in Organic Chemistry 1 May be repeated for credit; cumulative maximum 6 hours. Presentation and discussion of topics in organic chemistry taken from research in progress or current literature.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Department of Civil and Environmental Engineering


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 objectives of the undergraduate degree program are to give students a thorough understanding in the fundamental principles upon which the profession is based and knowledge of the design processes that apply those principles. The curriculum has sufficient coverage of the various areas of civil engineering to allow graduates to pursue a life of learning and a productive professional career. 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.

Because of the ever-increasing knowledge required to practice at high levels of competence in the specialized branches of civil engineering, an educational preparation of five or more years of college study is becoming more important. By an appropriate choice of electives the undergraduate curriculum may be integrated with a graduate program to provide a continuous schedule of studies leading to both the bachelor’s and master’s degrees.

The department offers courses of study leading to the degrees of Bachelor of Science in Civil Engineering, Master of Science in Civil Engineering, Master of Science in Environmental Engineering, and Doctor of Philosophy (Civil Engineering). The department participates in interdepartmental programs leading to the degrees of Master of Science in Environmental Science, and Master of Regional Planning.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

All students completing the schedule of studies below earn a Bachelor of Science degree in Civil Engineering. 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, fall basis.

CIVIL ENGINEERING DEGREE PROGRAM (129 HOURS) ✔FYDA

Freshman Year

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<th>First Semester</th>
<th>Hours</th>
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<tr>
<td>C E 120</td>
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<tr>
<td>Chem 105 [P] (GER)</td>
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<td>Engl 101 [W] (GER)</td>
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<td>GenEd 110 [A] (GER)†</td>
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<tr>
<td>Math 171 [N] (GER)†</td>
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<tr>
<td>GenEd 111 [A] (GER)†</td>
<td>3</td>
</tr>
<tr>
<td>M E 103</td>
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<tr>
<td>Math 172†</td>
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<td>SpCom 102 [C] (GER)</td>
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Sophomore Year

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<tr>
<td>C E 211†</td>
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<tr>
<td>Cpt S 203</td>
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<tr>
<td>Econ 101[S] or Econ 102 [S] (GER)†</td>
<td>3</td>
</tr>
<tr>
<td>Math 220</td>
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</tr>
<tr>
<td>Math 273</td>
<td>2</td>
</tr>
<tr>
<td>Phys 201 [P] (GER)†</td>
<td>4</td>
</tr>
<tr>
<td>Second Semester</td>
<td>Hours</td>
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<tr>
<td>C E 212</td>
<td>3</td>
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<tr>
<td>C E 215</td>
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Statistics/Numerical Methods        2
Chem 106 [P], Geol 102 [P], or
Phys 202 [P] (GER)                  4
M E 320                              1
Math 315                             3

Junior Year

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<td>C E 301</td>
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<tr>
<td>C E 315</td>
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<td>C E 317 [M]</td>
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<td>C E 330</td>
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<td>C E 341</td>
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<td>E E 304 or M E 301</td>
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Complete Writing Portfolio

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>C E 322</td>
<td>3</td>
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<td>C E 351</td>
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<td>C E 463</td>
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<td>Engl 402 [W] (GER)</td>
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<tr>
<td>Intercultural [J,G,K] (GER)†</td>
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Senior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)†</td>
<td>3</td>
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<tr>
<td>C E Electives†</td>
<td>9</td>
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<tr>
<td>C E Laboratory</td>
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<table>
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<tr>
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<tbody>
<tr>
<td>C E 465 [M]</td>
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<tr>
<td>C E 480 [M]</td>
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<tr>
<td>C E Elective†</td>
<td>9</td>
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<tr>
<td>Tier III Capstone (GER)</td>
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</tr>
</tbody>
</table>

The Alternate Senior Year Environmental Engineering Emphasis

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.

Senior Year

<table>
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<tr>
<th>First Semester</th>
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<td>C E 415†</td>
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<td>C E 463</td>
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<td>C E Elective†</td>
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<td>C E 442</td>
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<td>C E 480 [M]</td>
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<td>C E Elective†</td>
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</tr>
<tr>
<td>Tier III Capstone (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

1 General Education Requirement courses. These 18 credit hours will be completed, 15 of which must be taken in one area of coherence. Faculty advisors will help students in selecting these.

2 Classes that must be completed prior to certification.

3 Strongly recommended for an Environmental Engineering emphasis.

4 Elective courses: The total credit hours for elective and required courses must be distributed such that at least 18 hours are in engineering design and at least 32 hours are in engineering science in order for a student to qualify for a degree. C E electives including C E laboratory will be selected from at least three different areas (environmental, geotechnical, hydraulics, structural, and transportation/pavement).

Certification

Certification into the department is the formal acceptance of the student by the department to pursue a professional academic program in that department. Students who will be completing at least 45 semester hours of course work at the end of the semester including C E 211, Math 171, 172, and Phys 201 or equivalents are eligible to apply for certification in 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 g.p.a. and grades in the prerequisite courses listed above, will be certified into the department until the carrying capacity is reached. Preference will be given to applications received before April 15 for the fall semester and November 15 for the spring semester.

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. Applications from transfer students will be handled by the Admissions Office.

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 above schedule of studies.

Description of Courses


Civil Engineering

C E

120 Innovation in Design 2 Same as M E 120.

174 Introduction to Meteorology and the Atmospheric Environment 3 Introduction to meteorology, the atmospheric processes; weather, air pollution, and environmental topics.

211 Statics 3 Prereq Math 172 or c//; Phys 201 or c//. Engineering mechanics concepts; force systems; static equilibrium; centroids, centers of gravity; shear and moment diagrams; friction; moments of inertia. Cooperative course taught jointly by WSU and UI (ME 210).
212 Dynamics 3 Prereq C E 211. Kinematics and kinetics of particles and rigid bodies; introduction to mechanical vibration. Cooperative course taught jointly by WSU and UI (ME 220).

213 Statics and Mechanics of Materials 4 Prereq Math 172; Phys 201. Introduction to statics and mechanics of materials.

214 Introductory Dynamics 2 Prereq C E 211 or 213. Kinematics and kinetics of particles and rigid bodies.

215 Mechanics of Materials 3 Prereq C E 211. Concepts of stress, strain, and their relationships; axial loads, torsion and bending; combined stress; properties of materials; columns, repeated loadings. Cooperative course taught jointly by WSU and UI (ME 340).

301 Surveying for Engineers 3 (2-3) Prereq M E 103; Math 171. Basic principles for using instruments and equipment in conducting engineering surveys; analyses of errors in measurements.


317 [M] Geotechnical Engineering 3 (2-3) Prereq C E 215, 315 or c/. Structure, index properties, and classification of soils; compaction; effective stress; seepage; consolidation and shear strength.

322 Transportation Engineering 3 Prereq C E 260 or c/. Transportation engineering; demand and performance functions; geometric design; capacity and control of transport modes.

330 Introduction to Structural Engineering 3 Prereq C E 215; Math 220. Introduction to structural analysis and design; statically determinate systems; deflections; structural loads; design philosophies.

341 Introduction to Environmental Engineering 3 Prereq Bio S 103 or Micro 101; Chem 105. Impact of pollutants on the environment; pollution sources and sinks; engineering aspects of air and water quality; introduction to pollution control.

351 Water Resources Engineering 3 Prereq C E 315. 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 senior standing. Basic properties and mix designs of aggregates, asphalt, concrete and recycled materials; quality assurance, quality control.

403 Environmental Geology 3 Same as Geol 403.

405 Geophysics 4 (3-3) Same as Geol 405.

408 Air Pollution Control Engineering 3 Prereq senior in Engr or Ph.S. Measurement and control of air pollution; engineering design calculations; equipment and process. Cooperative course taught jointly by WSU and UI (Ch E 575). Credit not granted for both C E 408 and 508.

410 Experimental Methods in Geotechnical Engineering 3 (1-6) Prereq C E 317. Experimental methods of evaluating geotechnical engineering properties including shear strength, stress/strain behavior, time-dependent behavior, and permeability. Credit not granted for both C E 410 and 510.

414 Structural Design Laboratory 3 (1-6) Prereq C E 431, 433 or c/. Senior design lab on the integration of previous course work into the execution of design.

415 Environmental Measurements 3 (1-6) Prereq C E 341. 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. Experiments related to fluid flow principles and their application to hydraulic engineering.

418 Hazardous Waste Engineering 3 or 4 Prereq C E 341 or graduate standing. Hazardous waste properties, chemodynamics, and health effects; introduction to risk assessment and hazardous waste remediation. Cooperative course taught by WSU, open to UI students (CE 435). Credit not granted for both C E 418 and 518.

419 Hazardous Waste Treatment 3 Prereq C E 418. 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. Compaction theory and methods; deep densification of soils; advanced consolidation theory, preloading, vertical drains, chemical stabilization, growing design with geosynthetics. Credit not granted for both C E 425 and 525. Cooperative course taught by WSU, open to UI students (CE 567).

430 Analysis of Indeterminate Structures 3 Prereq C E 330. Classical and matrix-stiffness methods for the analysis of trusses, beams, and frames; computer applications.

431 Structural Steel Design 3 Prereq C E 330. Design of steel structures by working stress design and plastic design; uses of AISC Building Specification.

433 Reinforced Concrete Design 3 Prereq C E 330. Behavior, analysis, and design of reinforced concrete structures; flexure; shear; bond; serviceability requirements; design of beams, columns, and slabs.

434 Prestressed Concrete Design 3 Prereq C E 433. Behavior, analysis, and design of pretensioned and post-tensioned prestressed concrete structures; flexure, shear, bond, anchorage zone design; prestress losses. Credit not granted for both C E 434 and 534. Cooperative course taught by WSU, open to UI students (CE 442).

435 Foundations 3 Prereq C E 317. Site investigation; bearing capacity; settlement and design of shallow foundations; piles and piers; design of retaining walls. Cooperative course taught by WSU, open to UI students (CE 461).

436 Design of Timber Structures 3 Prereq C E 330. Engineering properties of wood products; analysis and design connection details, durability and moisture effects; lumber, plywood, glulam, poles, adhesives. Cooperative course taught by WSU, open to UI students (CE 443).

442 Water and Wastewater Treatment Design 3 Prereq C E 341; major in Engr or Env S. Water and wastewater treatment processes and design.

450 Hydraulic Engineering Design 3 Prereq C E 351. 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 Control Engineering 3 Prereq C E 315. Steady, non-uniform flow; controls and transitions in fixed-bed channels. Credit not granted for both C E 451 and 551.

460 Advanced Hydrology 3 Prereq C E 351. Components of the hydrologic cycle; conceptual models; watershed characteristics; probability/statistics in data analysis; hydrographs; computer models; and design applications. Credit not granted for both C E 460 and 560.

462 Engineering Law and Contracts 2 Development of law, courts, and ethics; law on contracts, agency, sales, property, and patterns; specifications; preparation of contract documents. Cooperative course taught by UI (CE 484), open to WSU students.

463 Engineering Administration 3 Engineering economy; annual cost, present worth, rate of return, and benefit-cost ratio in engineering decision making; basic contract law. Cooperative course taught jointly by WSU and UI (CE 486).

464 Construction Management 3 Job scheduling, job planning, project control, records and policies, and construction equipment.

465 [M] Integrated Civil Engineering Design 3 (1-6) Prereq senior in C E. Civil engineering applications to planning and design; problem synthesis, data analysis, decision making and reporting.

471 Meteorology 3 Prereq Math 273; Phys 202. Basic meteorology; atmospheric thermodynamics; cloud physics, synoptic meteorology; radiative processes; climate change. Credit not granted for both C E 471 and 571.

473 Pavement Design 3 Prereq C E 215, 317; Econ 101 or 102, Math 360; c/ in C E 322. Systems approach to managing pavements; evaluation, design, alternative design selection and characterization of pavement materials. Cooperative course taught jointly by WSU and UI (CE 475).

474 Intermediate Transportation Engineering 3 Prereq C E 322. Fundamentals of geometric design and traffic engineering for urban and rural highways. Cooperative course taught by UI (CE 474), open to WSU students.

475 Groundwater 3 (2-3) Same as Geol 475.


495 Engineering Internship V 1-4 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.

499 Special Problems V 1-4 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. Analysis, planning, design, and evaluation of transportation modes and systems. Cooperative course taught jointly by WSU and UI (CE 571).

506 Design and Construction of Water Wells 3 Analysis of geologic and engineering factors important in design, construction, and maintenance of water wells. Cooperative course taught by UI (Hydro 575), open to WSU students.

507 Seepage and Earth Dams 3 Principles of earth dam design, failures, considerations in construction; principles governing flow of water through soils. Cooperative course taught by UI (Geol E 535), open to WSU students.

508 Air Pollution Control Engineering 3 Prereq graduate standing. Graduate-level counterpart of C E 408; additional requirements. Credit not granted for both C E 408 and 508.
510 Experimental Methods in Geotechnical Engineering 3 (1-6) Graduate-level counterpart of C E 410; additional requirements. Credit not granted for both C E 410 and 510.

511 Advanced Topics in Geotechnical Engineering V 2-4 May be repeated for credit; cumulative maximum 9 hours. Prereq C E 317. Soil dynamics, geotechnical earthquake engineering, theoretical soil mechanics, numerical methods in soil mechanics, and geohydrology, engineering geology, cold regions geoengineering. Cooperative course taught jointly by WSU and UI (CE 546).

512 Dynamics of Structures 3 Behavior of structures under impact, impulse, and seismic loads. Cooperative course taught jointly by WSU and UI (CE 569).

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 543).

515 Environmental Measurements 3 (1-6) Graduate-level counterpart of C E 415; additional requirements. Credit not granted for both C E 415 and 515.

516 Unsteady Closed-Conduit Flow 3 Prereq C E 351. Derivation of governing equations; finite difference methods; methods of characteristics; boundary conditions; computational procedures; transients caused by centrifugal pumps.

517 Unsteady Open-Channel Flow 3 Prereq C E 451. Derivation of governing equations; explicit and implicit finite difference methods; computational procedures; stability and convergence.

518 Hazardous Waste Engineering 3 or 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 518. Graduate-level counterpart of C E 419; additional requirements. Credit not granted for both C E 419 and 519.

525 Soil and Site Improvement 3 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 Advanced Soil Mechanics 3 Prereq C E 317. Effective stresses and lateral earth pressures; interrelationships of applied stresses, permeability, strain and shear strength of soils. Cooperative course taught by UI (CE 561), open to WSU students.

528 Advanced Foundation Engineering 3 Prereq C E 317. Consolidation theories, bearing capacity, and settlements of foundations, pile group behavior, theory of subgrade reaction, materials foundations, laterally loaded piles. Cooperative course taught by UI (CE 562), open to WSU students.

529 Soil Dynamics 3 Prereq graduate standing. Vibration theory; analysis of machine vibrations; wave propagation through soils; dynamic loading of soils; liquefaction. Cooperative course taught by UI (CE 563), open to WSU students.

531 Structural Reliability 3 Probabilistic structural analysis and design; probabilistic characterization of material properties and load combinations (dead, live, earthquake, wind); LRFD structural design. Cooperative course taught jointly by WSU and UI (CE 445/545).

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 by WSU, open to UI students (CE 547).

534 Prestressed Concrete 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).

536 Nondestructive Testing of Structural Materials 3 Principles of nondestructive testing applied to wood-based materials, steel, concrete, and masonry. Cooperative course taught by WSU, open to UI students (ForPr 535).

537 Advanced Topics in Structural Engineering 3 May be repeated for credit; cumulative maximum 6 hours. Elastic stability, plates and shells, other relevant topics. Cooperative course taught by WSU (CE 549).

538 Earthquake Engineering 3 Prereq C E 512. Ground motion characterization, elastic and inelastic structural dynamic response, code procedures, lateral force-resisting systems, detailing for inelastic response.

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 electro-metric, spectrophotometric, and chromatographic techniques. Cooperative course taught by WSU, open to UI students (CE 530).

541 Environmental Engineering Unit Operations 3 Prereq C E 442; Math 315. Theory and design of physical and chemical unit operations of water and wastewater treatment systems. Cooperative course taught jointly by WSU and UI (CE 531).

542 Environmental Engineering Unit Processes 3 Prereq C E 541. Biochemical energetics and kinetics; biological waste treatment processes; nutrient removal; advanced wastewater treatment design. Cooperative course taught jointly by WSU and UI (CE 532).

543 Advanced Topics in Environmental Engineering Practice V 1-4 May be repeated for credit; cumulative maximum 8 hours. Analysis and evaluation of air/water/soil pollution problems, new measurement methods, hazardous waste treatment, global climate change, and water/wastewater treatments.

544 Wastewater Treatment System Design 3 (2-3) Prereq C E 542 or c//. Application of unit operations and processes to design of integrated treatment systems; critical review of designs. Cooperative course taught jointly by WSU and UI (CE 536).

546 Parameters for Synthesis of Wood Composition Materials 3 Same as MSE 546.

547 Principles of Environmental Engineering 3 Prereq C E 315, 341; Math 315. Principles of chemistry, microbiology, thermodynamics, material and energy balances, and transport phenomena, for environmental engineers.

548 Advanced Topics in Water Quality Engineering Systems V 2-4 May be repeated for credit; cumulative maximum 6 hours. Analysis and evaluation of natural water systems for retention and transport of pollutants and their associated impacts.

550 Intermediate Fluid Mechanics 3 Prereq C E 315. Basic flow equations; Navier-Stokes equations; similitude, potential flow, boundary layers, turbulence, and diffusion; uniform and non-uniform conduit flow; drag and lift. Cooperative course taught by WSU, open to UI students (CE 525).

551 Open Channel Flow 3 Graduate-level counterpart of C E 451; additional requirements. Credit not granted for both C E 451 and 551.

556 Numerical Modeling in Fluid Mechanics 3 Prereq C E 315. Fundamental concepts in development of numerical models for fluid flow with applications to steady and unsteady flows.

559 Field Methods in Hydrogeology 2 (1-3) Same as Geol 569.

561 Water Resources Systems 3 Concepts in water development; coordination of development of other natural resources; systems approach and optimization techniques. Cooperative course taught by UI (CE 531), open to WSU students.

562 Water Resources Planning 3 Prereq C E 351. Design and feasibility studies in water supply, power, flood problems, navigation, irrigation, recreation. Cooperative course taught by UI (CE 524), open to WSU students.

571 Meteorology 3 Graduate-level counterpart of C E 471; additional requirements. Credit not granted for both C E 471 and 571.

572 Advanced Pavement Analysis 3 Prereq C E 473. Fundamentals of pavement-vehicle interaction and the mechanics of pavement response and damage.

573 Air Pollution Abatement and Administration 2 Air quality management, criteria, and standards; administration of air pollution Department of Civil and Environmental Engineering systems; analytic and numerical solutions and interaction. Cooperative course taught by UI (CE 523), open to WSU students.

577 Advanced Groundwater Hydraulics 3 Prereq Geol 475, Math 315. Modeling of subsurface flow in saturated, unsaturated, and multilayer systems; analytic and numerical solutions, review of statistical geohydraulic methods.

579 Groundwater Geochemistry V 2-4 May be repeated for credit; cumulative maximum 4 hours. Same as Geol 579.
Edward R. Murrow School of Communication


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 School of Communication lead to the degrees of Bachelor of Arts in Communication and Master of Arts in Communication. The school also participates in the university’s interdisciplinary Ph.D. program. Students may major in advertising, broadcasting, journalism, public relations, broadcast management, or speech communication. Students may also fashion a general communication curriculum. The undergraduate program reflects a blending of professional, liberal arts, and theory and research courses.

Students in newspaper journalism and speech communication may prepare for teacher certification through the Department of Elementary and Secondary Education. The School also cooperates with the College of Agriculture and Home Economics in support of the agricultural communications option. Supplementing the classrooms and laboratories of the Murrow School are the professional internship program, campus radio and television facilities, and student publications, including a daily newspaper.

Certification Requirements
To certify to a major in communication, a student must have earned at least 45 semester hours and normally no more than 90 hours and meet the following minimum requirements: (1) 2.7 cumulative g.p.a. in WSU communication courses; (2) 2.5 overall cumulative g.p.a.; (3) C grade or better in Com 101, 245, 270, 295; SpCom 102. Students transferring into the department with 35 or more hours are urged to complete certification requirements within two semesters. Satisfactory completion of a writing skills test is required for enrollment into Com 295.

General School Requirements
Each student will complete the requirements of one of the following sequences and accumulate a minor of 18 hours (9 300-400-level 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 sequence, must take a minimum of 15 credit hours in the school.

Degree Program Requirements
Honors students complete Honors Requirements in place of General Education Requirements.
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 of communication literacy or development courses; or 3 hours of communication literacy and 3 of development courses.

FIRST YEAR REQUIREMENTS
The first year requirements are common to all communications degree programs:

**Freshman Year**

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<td>Com 101</td>
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<td>Engl 101 [W] (GER)</td>
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<td>GenEd 110 [A] (GER)</td>
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**Second Semester**

<table>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Com 270</td>
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<td>SpCom 102 [C] (GER)</td>
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<td>Tier I Science [Q] (GER)</td>
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1 Students may substitute one four-credit Tier I Science for both the three-credit Tier I Science and one-credit Science Elective
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 Communication Literacy Electives: Com 410, 440, 450, 460, SpCom 324, 385, 401, Jour 425.
5 Any seminar numbered 475 in communication.
**BROADCAST MANAGEMENT DEGREE PROGRAM (120 HOURS)**

**Sophomore Year**

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<td>Com 245</td>
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<td>Com 295</td>
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**Second Semester**

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**Junior Year**

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<td>Com Development Elective</td>
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<tbody>
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<td>300-400-level Minor Elective</td>
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<tr>
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<tr>
<td>Com Development Elective</td>
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<tr>
<td>Foreign Language, if necessary, or Elective</td>
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<tr>
<td>Jour 330</td>
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**Senior Year**

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<td>Biological Sciences [B] (GER)</td>
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<td>Degree Program Course</td>
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<td>Foreign Language, if necessary, or Elective</td>
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<tr>
<td>Tier III Capstone (GER)</td>
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**Second Semester**

<table>
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<tbody>
<tr>
<td>Com Development (for enrichment)</td>
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<tr>
<td>Foreign Language, if necessary, or Elective</td>
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<tr>
<td>Tier III Capstone (GER)</td>
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</table>

- Students may substitute one four-credit Tier I Science for both the three-credit Tier I Science and one-credit Science Elective.
- 18 credits in another department, 9 of which are 300-400-level.
- Students must take one year of foreign language if two years of a foreign language was not taken at the high school level.
- Any seminar numbered 475 in communication.

**PUBLIC RELATIONS DEGREE PROGRAM (120 HOURS)**

**Sophomore Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Com 245</td>
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<tr>
<td>Com 295</td>
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<tr>
<td>Math Proficiency [N] (GER)</td>
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**Second Semester**

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<th>Hours</th>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>Foreign Language, if necessary, or Elective</td>
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<tr>
<td>Intercultural [I,G,K] (GER)</td>
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<td>Physical Sciences [P] (GER)</td>
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**Junior Year**

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<tr>
<th>First Semester</th>
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<tr>
<td>300-400-level Minor Electives</td>
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<tr>
<td>Com 415</td>
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**Second Semester**

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<td>Physical Sciences [P] (GER)</td>
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<td>Social Sciences [S,K] (GER)</td>
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- Students must take one year of foreign language if two years of a foreign language was not taken at the high school level.
- Any seminar numbered 475 in communication.

**JOURNALISM DEGREE PROGRAM (120 HOURS)**

**Sophomore Year**

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<th>First Semester</th>
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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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**Second Semester**

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<tbody>
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<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>Jour 305</td>
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**Second Semester**

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<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>Physical Sciences [P] (GER)</td>
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- Students may substitute one four-credit Tier I Science for both the three-credit Tier I Science and one-credit Science Elective.
- 18 credits in another department, 9 of which are 300-400-level.
- Students must take one year of foreign language if two years of a foreign language was not taken at the high school level.
- Any seminar numbered 475 in communication.

**BROADCAST NEWS AND PRODUCTION DEGREE PROGRAMS (120 HOURS)**

**Sophomore Year**

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**Second Semester**

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<td>Physical Sciences [P] (GER)</td>
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**Junior Year**

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<td>Jour 305</td>
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**Second Semester**

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<td>Physical Sciences [P] (GER)</td>
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- Students must take one year of foreign language if two years of a foreign language was not taken at the high school level.
- Any seminar numbered 475 in communication.
Second Semester  Hours
300-400-level Minor Elective 3
Biological Sciences [B] (GER) 4
Com 409 3
Com Development Elective 3
P R 313 3

Senior Year
First Semester  Hours
Minor Electives 6
Com Literacy (for enrichment) 3
Seminar 6

Second Semester  Hours
Com Development (for enrichment) 3
Foreign Language, if necessary, or Elective 3
Seminar [M] 6
Tier III Capstone (GER) 3

1 Students may substitute one 4-credit Tier I Science for the three 3-credit Tier I Science and one-credit Science Elective
2 18 credits in another department, 9 of which are 300-400-level.
3 Students must take one year of foreign language if two years of a foreign language was not taken at the high school level.
5 Communication Literacy Electives: Com 410, 440, 450, 460, SpCom 324, 385, 401, Jour 425.
6 Any seminar numbered 475 in communication.

SPEECH COMMUNICATION DEGREE PROGRAM (120 HOURS)

Sophomore Year
First Semester  Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Com 245 3
Com 295 3
Math Proficiency [N] (GER) 3
SpCom 185 or 235 3

Second Semester  Hours
Arts & Humanities [H,G] (GER) 3
Intercultural [L,G,K] (GER) 3
Physical Sciences [P] (GER) 3
Social Sciences [S,K] (GER) 3
SpCom 251, 302, or 351 3

Junior Year
First Semester  Hours
Foreign Language, if necessary, or Elective 6
Minor Electives 6
Science Elective 1
SpCom 324 or 401 3
Complete Writing Portfolio

Second Semester  Hours
300-400-level Minor Electives 6
300-400-level SpCom Elective 3
Biological Sciences [B] (GER) 4
Com Development Elective 3

Senior Year
First Semester  Hours
300-400-level Minor Elective 3
Com Literacy Elective 3
Com Literacy (for enrichment) 3

Minor Elective 3
Elective 3

Second Semester  Hours
Com Development (for enrichment) 3
Foreign Language, if necessary, or Elective 3
Seminar [M] 6
Tier III Capstone (GER) 3

1 Students may substitute one 4-credit Tier I Science for both the three 3-credit Tier I Science and 1-credit Science Elective
2 18 credits in another department, 9 of which are 300-400-level.
3 Students must take one year of foreign language if two years of a foreign language was not taken at the high school level.

Agricultural Communications
This is a major in the Department of Biological Systems Engineering in cooperation with the School of Communication. The student declaring this major must complete the requirements of the general agricultural curriculum and accumulate a minimum of 30 hours in the School of Communication, including any communication courses used to satisfy general agricultural requirements. Those electing this major should make that decision known as early as possible in their academic careers. Agricultural communications majors must complete the following: Broadcast Media: Bdcst 350, 355, 365; Com 295, 409; P R 312, 313, 412; and 6 elective hours in the School of Communication. Print Media: Com 253, 295, 409; Jour 305; P R 312, 313, 412; and 9 elective hours in the School of Communication. The student should consult with a School of Communication advisor before registering for elective courses. Specialized programs patterned for the individual career aspirations may be developed in conjunction with the head of the School of Communication or a designated representative.

Description of Courses
Enrollment in all 300- and 400-level courses, except GER courses, is limited to certified communication majors or certified majors whose degree programs require these courses.

Intersequence Courses
Com 101 [S] Mass Communications and Society 3
Mass media in contemporary society.

1 Students may substitute one 4-credit Tier I Science for both the three 3-credit Tier I Science and 1-credit Science Elective
2 18 credits in another department, 9 of which are 300-400-level.
3 Students must take one year of foreign language if two years of a foreign language was not taken at the high school level.

Edward R. Murrow School of Communication
501 Theory Building in Communications 3 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. S, F grading.

509 Quantitative Research 3 Introduction to quantitative research in communication; hypothesis development, testing; basic statistics, interpretation; field surveys, laboratory and field experiments, content analysis.

510 History of Mass Communications 3 Graduate-level counterpart of Com 410; additional requirements. Credit not granted for both Com 410 and 510.

515 Law of Mass Communications 3 Graduate-level counterpart of Com 415; additional requirements. Credit not granted for both Com 415 and 515 requirements.

520 New Communication Technologies 3 Graduate-level counterpart of Com 420; additional requirements. Credit not granted for both Com 420 and 520.

524 Criticism of Public Address 3 Graduate-level counterpart of SpCom 424; additional requirements. Credit not granted for both SpCom 424 and Com 524.

525 Rhetorical Theory 3 Major theories from classical to contemporary; analysis of symbolic action in public, political discourse.

526 New Communication Technologies 3 Graduate-level counterpart of Com 420; additional requirements. Credit not granted for both Com 420 and 520.

538 (555) Seminar in Training and Development 3 May be repeated for credit; cumulative maximum 6 hours. Instructional aspects of training and consultation in organizational communication; team-building, presentation skills, conflict resolution, assessment leadership, group dynamics.

540 Media Ethics 3 Graduate-level counterpart of Com 440; additional requirements. Credit not granted for both Com 440 and 540.

550 Mass Media and the First Amendment 3 Graduate-level counterpart of Com 450; additional requirements. Credit not granted for both Com 450 and 550.

560 Mass Media Criticism 3 Graduate-level counterpart of Com 460; additional requirements. Credit not granted for both Com 460 and 560.

570 Communication Theory 3 Relevant theories and research from mass and interpersonal communication.

580 Topics in Communication 3 May be repeated for credit; cumulative maximum 12 hours. Contemporary, specialized, or technical topics in communication.

585 Interpersonal and Small Group Communication 3 Theory and research in interpersonal and small group communication.

591 Qualitative Research Methods 3 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. Special topics in rhetoric, communications, and public address.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination 3 Prereq. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination 3 Variable credit. S, F grading.

Advertising

Adver 380 Advertising Principles and Practices 3 Advertising history, theory and practice by advertising agencies and organizations.


382 Media Planning 3 Prereq Adver 380. Media planning theories, strategies, and practices.

385 Seminar in Advertising 3 May be repeated for credit; cumulative maximum 9 hours. Prereq Com 409; for seniors and graduate students.


483 Advertising Research 3 Prereq Adver 380, 381, 382, Com 409, Mkfg 360. Professional research practices in advertising.

495 Advertising Professional Internship V 2 (0-6) to 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. By interview only. S, F grading.

580 Special Problems V 1-4 May be repeated for credit. S, F grading.

581 Broadcast News Writing, Reporting, and Editing 3 (2-3) Graduate-level counterpart of Bdcst 465; additional requirements. Credit not granted for both Bdcst 465 and 581.

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499 Special Problems V 1-4 May be repeated for credit. S, F grading.
525 Reporting of Public Affairs 3 Graduate-level counterpart of Jour 425; additional requirements. Credit not granted for both Jour 425 and 525.
581 Newspaper Management 3 Graduate-level counterpart of Jour 481; additional requirements. Credit not granted for both Jour 481 and 581.

Public Relations

P R
312 Principles of Public Relations 3 Prereq Com 295. Principles, theories, methods and objectives of public relations; public relations problems and practices.
313 [M] Public Relations Techniques and Media Usage 3 (2-3) Prereq Com 295, Jour 305; P R 312. Practical applications of public relations theory and techniques with emphasis on writing and media use.
412 Public Relations Management and Campaign Design 3 Prereq Com 409, P R 312, Jour 306 or P R 313. Application of public relations principles, management, persuasion theory and research methods to public relations issues. Credit not granted for both P R 412 and 512.
475 Public Relations Seminar 3 May be repeated for credit; cumulative maximum 9 hours. By interview only. For seniors and graduate students. Theory, methods, and applications of communication and campaign management; political communication, health communication, motion of expression, special audiences. Credit not granted for both P R 475 and 575.
495 Public Relations 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; by interview only. S, F grading.
499 Special Problems V 1-4 May be repeated for credit. S, F grading.
512 Public Relations Management and Campaign Design 3 Graduate-level counterpart of P R 412; additional requirements. Credit not granted for both P R 412 and 512.
575 Seminar in Public Relations 3 Graduate-level counterpart of P R 475; additional requirements. Credit not granted for both P R 475 and 575.

Speech Communication

SpCom
185 Principles of Interpersonal Communication 3 Theory and practice of interpersonal communication; understanding and applying intrapersonal information in interpersonal settings.
235 [C] Principles of Group Communication 3 Theoretical and practical aspects of communication in groups; classroom exercises and films demonstrate principles and develop skills.
251 Oral Interpretation of Literature 3 Analyzing and oral reading of prose, poetry, and drama; sharing literature with an audience.
302 [C] Advanced Public Speaking 3 Advanced principles of public speaking and their practical implementation in effective communication.
324 [C][M] Argumentation 3 Theory, analysis and application of written and oral arguments in everyday use.
334 Deliberative Decision-Making 3 Debate; researching the topic; case construction, analysis, and practice debating.
335 Organizational Communication 3 Prereq SpCom 235 or P R 312. Communication theory and organizational functions; communication influences on organizational behavior, managerial effectiveness, corporate culture, organizational power and politics.
351 Advanced Interpretation 3 Voice and diction, interpretation of copy for broadcast.
385 Advanced Principles of Interpersonal Communication 3 Prereq SpCom 185. Theoretical literature relevant to analyzing relationships; students use this information to analyze a relationship.
401 Persuasion 3 Theories of persuasion and social action; study of strategies and techniques for the persuasive use of language and other symbols.
424 [M] Criticism of Public Address 3 Critical analysis of public messages; applications of traditional and contemporary approaches to textual analysis, from classical to postmodern theory. Credit not granted for both SpCom 424 and Com 524.
435 Advanced Organizational Communication 3 Prereq SpCom 335. Advanced concepts, models and methods for in-depth analysis of contemporary organizations. Credit not granted for both SpCom 435 and 535.
451 Readers Theatre for the Classroom 3 Principles of literature selection, scriptwriting and staging of readers theatre for classroom. Credit not granted for both SpCom 451 and 551.
475 Seminar in Speech Communication 3 By interview only. May be repeated for credit; cumulative maximum 9 hours. For seniors and graduate students.
485 Applied Interpersonal Communication 3 Prereq SpCom 185 or 385. How a person relates to others; cognitive and affective parts of the process.
488 Structure of Conversation 3 Prereq Com 245. Symbol systems and their interrelation in sequential organization in everyday communication. Credit not granted for both SpCom 488 and 588.
495 Speech Communication Professional Internship V 2 (0-6) to 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. By interview only. S, F grading.
499 Special Problems V 1-4 May be repeated for credit. S, F grading.
535 Advanced Organizational Communication 3 Prereq graduate standing. Graduate-level counterpart of SpCom 435; additional requirements. Credit not granted for both SpCom 435 and 535.
551 Readers Theatre for the Classroom 3 Graduate-level counterpart of SpCom 451. Credit not granted for both SpCom 451 and 551.
588 Structure of Conversation 3 Prereq graduate standing. Com 501. Graduate-level counterpart of SpCom 488; additional requirements. Credit not granted for both SpCom 488 and 588.

COMMUNITY STUDIES MINOR
See Program in Rural Sociology.

Department of Comparative American Cultures

Professors, J. Peterson, W. Willard; Associate Professors, A. Kuo; Assistant Professors, C. Beckles, K. Ervin, Y. Flores Niemann, S. Fowler, R. Ong, M. Pizarro, L. Vo; Associate Professor Emeritus, T. Anderson.

The Department of Comparative American Cultures has a distinct function within the larger structure of Washington State University. It has the responsibility for providing the undergraduate student population with the critical understanding that ours is a complex multicultural society, made up of many racial and ethnic communities. The overall educational experience provides students with the opportunity to find significance and meaning in living within a complex multiracial and multi-cultural nation.

Comparative American Cultures offers an undergraduate major and minor which includes a stimulating sequence of core courses that introduce students to sophisticated critical analyses of race, ethnicity, and culture. The department also provides instruction through a comprehensive curriculum within four areas of emphasis: 1) African American Studies; 2) Asian/Pacific American Studies; 3) Chicano/a Studies; and 4) Native American Studies. Students can choose a particular area of emphasis or double-major in tandem with another discipline, such as American studies, anthropology, business, communication, education, English, environmental science, history, political science, psychology, sociology, teaching and learning, women's studies, and many others.

CAC faculty bring to their instruction and research multidisciplinary expertise in the areas of literature, cultural studies, education, political science, psychology, history, sociology, and anthropology. Faculty teach courses and conduct research that reflects this multidisciplinarity, thereby enriching the intellectual climate for students across the university. Many CAC faculty also hold joint appointments with departments of their specialty and most are members of the graduate faculty.

In addition to its strong academic curriculum, the Department of Comparative American Cultures is committed to developing relationships with organizations in the Pacific Northwest whose work strengthen multicultural and multiracial relationships locally, regionally, nationally, and globally. Students involved in a major program of study within the department are encouraged to seek out internships which provide them the opportunity to incorporate community service with their academic work.

The Department of Comparative American Cultures currently houses the Northwest Center for Comparative American Cultures and Race Relations. Funded by a grant from the Rockefeller Foundation, the center houses resident scholars who conduct research in the areas of race, ethnicity, and culture and who present their findings both departmental faculty and students in a series of formal lectures known as the Rockefeller Lecture Series and in small group meetings. The center also invites nationally known scholars from a variety of disciplines to participate in the Rockefeller Lecture Series.
Department of Comparative American Cultures

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

Students majoring in comparative American cultures are expected to fulfill all of the university's requirements for graduation, as well as 39 hours of CAC courses, distributed into 15 hours in the CAC core sequence (CAC 101, 201, 203, 301, 401), 15 hours in one ethnic area of concentration, and 9 hours outside that area. At least half of the 39 hours must be at the 300-400 level.

Students majoring in comparative American cultures are expected to fulfill all of the university's requirements for graduation, as well as 18 hours of CAC courses, with 9 hours in the CAC core sequence, and 9 hours outside that sequence. At least half of the 18 hours must be at the 300-400 level.

COMPARATIVE AMERICAN CULTURES DEGREE PROGRAM (120 HOURS) FYIDA

Freshman Year

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Sophomore Year

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<tr>
<td>Area Of Concentration²</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>CAC 201</td>
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<tr>
<td>Intercultural [I,G,K] (GER)</td>
<td>3</td>
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<tr>
<td>Electives</td>
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Junior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area Of Concentration²</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>CAC 301</td>
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<tr>
<td>Physical Sciences [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Writing In The Major Elective [M]</td>
<td>3</td>
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<tr>
<td>Complete Writing Portfolio</td>
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<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Area Of Concentration²</td>
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</tr>
<tr>
<td>CAC 401</td>
<td>3</td>
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<tr>
<td>Outside Area Elective³</td>
<td>3</td>
</tr>
<tr>
<td>Recommended Electives⁶</td>
<td>3</td>
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<tr>
<td>Writing In The Major Elective [M]</td>
<td>3</td>
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<table>
<thead>
<tr>
<th>Senior Year</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td></td>
</tr>
<tr>
<td>300-400-level Electives</td>
<td>3</td>
</tr>
</tbody>
</table>

Area Of Concentration² 3
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Outside Area Elective³ 3
Recommended Electives⁶ 3

Second Semester Hours
300-400-level Electives 9
Recommended Electives⁶ 3
Tier III Capstone (GER) 3

¹ Students may substitute one four credit Tier I Science for both the three credit Tier I Science and the one credit Science Elective.
² Students choose 15 hours in one ethnic area of concentration; at least half must be at the 300-400 level.
⁴ W St 200 [S] strongly recommended.
⁵ Students choose 9 hours outside their ethnic area of concentration; at least half must be above the 200 level.
⁶ Recommended electives include: CAC 300 [M], 335, 405.

African Studies Minor

The African Studies minor provides a broad interdisciplinary program designed to present the unity and diversity of African peoples, economies, and cultures. Students minoring in African studies are expected to fulfill all of the university’s requirements for graduation, as well as 18 hours of CAC courses, with 9 hours in the African Studies Minor core sequence. At least half of the 18 hours must be at the 300-400 level.

Core courses (9 hours): Anth 307, CAC 227, 439. Electives (9 hours): Three of the following: CAC 131, 235, 331, Pol S 460.

African Languages: Students may take up to 6 hours of an African language to fulfill elective requirements by making special arrangements with Independent Study Program.

Independent Study: CAC 499.

Description of Courses

Comparative American Cultures

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 [I]</td>
<td>Introduction to Comparative American Cultures 3 Comparative issues in Asian American, African American, Chicana/o, and Native American cultures in the United States.</td>
</tr>
<tr>
<td>111 [I]</td>
<td>Introduction to Asian/Pacific American Studies 3 Introduction to major historical, social, political, and cultural experiences which are currently the concern of many Asian American communities.</td>
</tr>
<tr>
<td>131 [I]</td>
<td>Introduction to Black Studies 3 Historical, cultural, sociological, and political experiences of Black people in America and Africa.</td>
</tr>
<tr>
<td>151 [G]</td>
<td>Introduction to Chicano Studies 3 Chicano culture and peoples (Americans of Mexican descent); historical backgrounds and contemporary conditions.</td>
</tr>
<tr>
<td>201 [G]</td>
<td>Introduction to Native American Studies 3 Introduction to Native American studies; introductory course to contemporary native America.</td>
</tr>
<tr>
<td>211 [K]</td>
<td>Introduction to Asian/Pacific American History 3 Historical experience of Asian/Pacific Americans since the 19th century.</td>
</tr>
<tr>
<td>212 [K]</td>
<td>Peoples of the World 3 Same as Anth 203.</td>
</tr>
<tr>
<td>217 [K]</td>
<td>Introduction to East Asian Culture 3 Same as Hist 275.</td>
</tr>
<tr>
<td>227 [I]</td>
<td>Introduction to African Studies 3 African continent; history, politics, art, and their effects today.</td>
</tr>
<tr>
<td>235 [I]</td>
<td>African American History 3 History of African Americans from colonial times to the present.</td>
</tr>
<tr>
<td>255 [I]</td>
<td>Chicana/o History 3 Analysis of the history which has shaped the Chicana and Chicano experience from 1521 through the modern period.</td>
</tr>
<tr>
<td>300 [S]</td>
<td>Intersections of Race, Class and Gender 3 Same as W St 300.</td>
</tr>
<tr>
<td>301 [I]</td>
<td>Comparative American Cultural Studies 3 Comparative analyses of the historic colonialist practices in the Americas and the continued colonial presence in contemporary culture.</td>
</tr>
<tr>
<td>314 [M]</td>
<td>Topics in Asian/Pacific American Literatures 3 May be repeated for credit; cumulative maximum 6 hours. Trends, themes, major writers.</td>
</tr>
<tr>
<td>331 [G]</td>
<td>Asian Pacific/American Literatures 3 Asian American fiction, drama, poetry, and other arts, 1900 to present; impact of Asian/Pacific American culture and experience upon these works.</td>
</tr>
<tr>
<td>332 [M]</td>
<td>Topics in African American Literature 3 May be repeated for credit; cumulative maximum 6 hours. Same as Engl 322.</td>
</tr>
<tr>
<td>335 [S]</td>
<td>Civil Rights Movement in America 3 Historical development and analysis of the Civil Rights Movement in the United States from 1900 to present.</td>
</tr>
<tr>
<td>339 [I]</td>
<td>Black Politics 3 Same as Pol S 324.</td>
</tr>
<tr>
<td>351 [I]</td>
<td>Spanish for Spanish Speakers I 3 Same as Span 324.</td>
</tr>
<tr>
<td>353 [G]</td>
<td>Introduction to Chicano/Chicana Literature 3 Chicano/Chicana literature, narrative (novel and autobiography), poetry, short story, drama; development of writing skills.</td>
</tr>
<tr>
<td>354 [I]</td>
<td>Vanguard Poetics in Chicano/Latino Writers 3 Concepts and techniques of Chicano/Latino vanguard poetry.</td>
</tr>
<tr>
<td>355 [I]</td>
<td>Chicana/os and the Educational System 3 Investigation of the educational experiences, both current and historical, of Chicana/os in the United States.</td>
</tr>
<tr>
<td>356 [B]</td>
<td>Bilingual Bicultural Education 3 Philosophical, legal, cultural, linguistic, and curricular aspects of bilingual education.</td>
</tr>
<tr>
<td>357 [I]</td>
<td>Chicana/o Identity Power and Empowerment 3 History and evolution of Chicana/o identity as an essential means toward understanding the Chicana/o experience.</td>
</tr>
<tr>
<td>359 [I]</td>
<td>Chicano/Latino Politics 3 Character, role, and goals of Chicano/Latino politics; contemporary Chicano/Latino issues.</td>
</tr>
<tr>
<td>373 [G]</td>
<td>Native American Literature 3 Native American literature, by and about the original inhabitants, image and counter-image, with emphasis on the 20th century.</td>
</tr>
<tr>
<td>375 [K]</td>
<td>North American Indian History, Precontact to Present 3 Same as Hist 308.</td>
</tr>
</tbody>
</table>
495 Special Topics in Comparative American Cultures 3 May be repeated for credit; cumulative maximum 6 hours. Prereq course in CAC. Cross-cultural studies on Asian/Pacific Americans, Blacks, Chicanos, and Native Americans.

498 Internship in Comparative American Cultures V 1-3 Prereq junior standing, 6 hours of CAC core course sequence, 6 hours in CAC areas of emphasis. Internship component for Comparative American Cultures majors and minors. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

COMPUTER ENGINEERING OR COMPUTER SCIENCE

See School of Electrical Engineering and Computer Science.

Program in Criminal Justice

Associate Professor and Program Director, G. Russell; Professors, N. Lovrich, O. Marenin, C. Sheldon, Emeritus; Associate Professors, A. Appleton, C. Clayton, L. Simon; Assistant Professors, D. Brody, R. Jackson, F. Latue, M. Newman, S. Steh, E. Weber; Instructor, M. Erp.

The Program in Criminal Justice, located in the Department of Political Science, offers substantive studies in criminal justice in conjunction with a liberal arts education. It prepares students for a broad range of careers (law enforcement, correction, juvenile justice, private security, non-profit) or the pursuit of graduate study, develops leadership qualities, and promotes the ideal of professional achievement in public service. The program focuses on the multi-disciplinary study of crime and its control, including the components, processes, and programs of the criminal justice system. The curriculum emphasizes the analysis and theories of crime and deviance, criminal law, law and social control, and research on and evaluation of criminal justice systems, administration, and management.

The student is required to complete collateral courses on the larger social, economic, and political environments in which crime and the criminal justice system operate. Taught by a multi-disciplinary faculty, these courses cover such areas as public administration, policy analysis, and research methods. Additional courses are taught by the Department of Sociology.

The courses of study lead to the degrees of Bachelor of Arts in Criminal Justice and Master of Arts in Criminal Justice.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

Students who major in criminal justice must complete the 12 credit criminal justice core (Crm J 101, 150, 320, 330) plus an additional 12 credits of electives (with 9 of the 12 in Crm J courses); of these 24 hours more than 3 can be taken in Crm J 490. In addition, the student must complete several collateral courses as outlined below. At least 40 of the total hours required for the bachelor's degree in this program must be in 300-400 level courses.

All criminal justice majors are required to complete a statistics course.

CRIMINAL JUSTICE DEGREE PROGRAM (122 HOURS) FYDA

Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G]</td>
<td>3</td>
</tr>
<tr>
<td>Crm J 101</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>Social Sciences [S,K] (GER)</td>
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Second Semester

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
</tr>
<tr>
<td>Communication [C,W] (GER)</td>
</tr>
<tr>
<td>Crm J 150</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Science Elective*</td>
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<tr>
<td>Tier I Science [Q] (GER)*</td>
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Sophomore Year

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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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</tr>
<tr>
<td>Biological [B] Sciences (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Crm J 320</td>
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</tr>
<tr>
<td>Intercultural [L,G,K] (GER)</td>
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<tr>
<td>Math Proficiency [N] (GER)</td>
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Second Semester

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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>Physical [P] Sciences (GER)</td>
</tr>
<tr>
<td>Psych 311, Soc 321, or Approved Statistics Course</td>
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<tr>
<td>Two from: Pol S 300, 402, 404, 443 or Soc 364</td>
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Junior Year

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<th>First Semester</th>
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<tbody>
<tr>
<td>Crm J 330</td>
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<tr>
<td>Crm J Electives</td>
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<td>Complete Writing Portfolio</td>
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Second Semester

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<td>One from: Pol S 316, 416, or Soc 424</td>
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<tr>
<td>Pol S 340</td>
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<tr>
<td>Soc 320</td>
</tr>
<tr>
<td>Soc 361</td>
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<tr>
<td>Soc 461</td>
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Senior Year

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<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Foreign Language, if necessary, or Electives</td>
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<tr>
<td>Electives</td>
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Second Semester

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<th>Hours</th>
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<tbody>
<tr>
<td>Foreign Language, if necessary, or Electives</td>
</tr>
<tr>
<td>Tier III Capstone (GER)</td>
</tr>
<tr>
<td>Electives</td>
</tr>
</tbody>
</table>

* Students may substitute one four-credit Tier I Science for both the three-credit Tier I Science and the Science Elective.

** At least 9 hours in Crm J courses: CRM J 365, 370, 381, 400 [M] (may be taken twice), 403, 405 [M], 420 [M], 425, 490, 499, SOC 360, 362, 480.
Minor in Criminal Justice

The minor in criminal justice requires 18 credits of course work in criminal justice, including Crm J 101, 320, 330. Half of the courses must be taken at the 300-400-level. Students wishing to declare a minor in criminal justice should contact the Criminal Justice Program for details.

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 numbered 300 or above at Washington State University and taken at other institutions during the freshman or sophomore years will not be accepted for major requirements.

Preparation for Graduate Study

Undergraduates who are pursuing their studies at other institutions or through other curricula at this institution and who contemplate graduate work in this program will do well to elect courses similar to those required in the above schedule of studies.

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 by WSU, open to UI students (CJ 101).

150 Organizational Environment of Criminal Justice

3 Prereq Crm J 101. Impact of organizational structures and dynamics on processes of decision making and the performance of criminal justice agencies. Cooperative course taught jointly by WSU and UI (CJ 325).

320 Criminal Law

3 Substantive criminal law; principles, functions, and limits; basic crime categories, state and national legal research materials. Cooperative course taught jointly by WSU and UI (CJ 150).

330 Crime Control Policies

3 Prereq Crm J 101. Analysis of ideologies, assumptions, and performance of crime control, policies. Cooperative course taught by WSU, open to UI students (CJ 330).

365 Juvenile Justice and Corrections


370 Introduction to Policing in America

3 Prereq Crm J 101. Development, organization, policies, and performance of the police. Cooperative course taught by WSU, open to UI students (CJ 370).

381 Justice, Law and the Media

3 (2-2) Prereq Crm J 101 or Pol S 101. Mass media as both reflector and shaper of public attitudes and opinions about crime, criminals, law, order, and justice; using films.

400 [M] Issues in the Administration of Criminal Justice

3 May be repeated for credit; cumulative maximum 6 hours. Prereq Crm J 101. Selected topics in criminal justice. Cooperative course taught by WSU, open to UI students (CJ 401).

403 [S] Violence Toward Women

3 Prereq Crm J 101 or W St 200; completion of one Tier I and three Tier II courses in appropriate area of coherence. Violence toward women and its relationship to broader social issues such as sexism and social control.

405 [M] Comparative Criminal Justice Systems

3 Prereq Crm J 101 Comparative study of criminal justice systems in the US and selected foreign countries. Cooperative course taught by WSU, open to UI students (CJ 405).

420 [M] Law of Evidence and Criminal Procedure

3 Prereq Crm J 320 Principal court decisions concerning standards of conduct and rights in the criminal process; evidentiary principles and privileges. Cooperative course taught by WSU, open to UI students (CJ 420).

424 Community Corrections

3 Prereq Crm J 150. Theory practice and human impact of treating criminal offenders in the community.

425 Law of Corrections

3 Prereq Crm J 320. Impact of federal and state laws; court decisions regarding corrections.

490 Criminal Justice Internship

V 2-12 May be repeated for credit; cumulative maximum 12 hours. Prereq Crm J 101. By interview only. Off-campus professional internship in selected criminal justice agencies. S, F grading.

499 Special Problems

V 1-4 May be repeated for credit. S, F grading.

504 Quantitative Methods in Political Science and Criminal Justice

3 Same as Pol S 504.

505 Comparative Criminal Justice

3 Compara- tive study of crime law and criminal justice systems in selected foreign countries. Cooperative course taught by WSU, open to UI students (CJ 505).

530 Criminal Justice: Process and Institutions

3 Processes of criminal justice in the context of the social, political, and economic environments. Cooperative course taught by WSU, open to UI students (CJ 530).

540 Seminar in Research Evaluation

3 Interrelation- ship of ideology, data, policy development, and policy implementation in public policy analysis. Cooperative course taught by WSU, open to UI students (CJ 540).

541 Seminar in Corrections

3 Prereq Stat course. Current issues related to the control, management, and sanctioning of criminal offenders. Cooperative course taught by WSU, open to UI students (CJ 541).

550 Planned Change in Criminal Justice

3 Analysis of change efforts aimed at individuals, organizations, and communities to reduce crime and improve the criminal justice system. Cooperative course taught by WSU, open to UI students (CJ 550).

570 The Police and Society

3 Community and selected social institutional factors as related to their influence on police systems. Cooperative course taught by WSU, open to UI students (CJ 570).

572 Seminar in Comparative Policing

3 Study of the history, organization, and policies of policing systems in selected countries and of transnational policing. Cooperative course taught by WSU, open to UI students (CJ 572).

580 Women and the Criminal Justice System

3 Policicing. Criminal justice system’s treatment of women offenders, victims, and professionals.

590 Criminal Justice Field Practicum

V 1-6 By interview only. Off-campus professional internship in selected criminal justice agencies. S, F grading.

591 Seminar in the Administration of Criminal Justice

3 May be repeated for credit; cumulative maximum 6 hours. Current issues, problems, and critical concerns within the field of administration of criminal justice. Cooperative course taught by WSU, open to UI students (CJ 591).

592 Topics in Criminal Justice

3 May be repeated for credit; cumulative maximum 6 hours. Selected issues and topics in criminal justice.

600 Special Projects or Independent Study

Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination

Variable credit. S, F grading.

Department of Crop and Soil Sciences


The department offers study programs leading to the degrees of Bachelor of Science in Crop Science, Bachelor of Science in Soil Science, Master of Science in Crop Science, Master of Science in Soil Science, Doctor of Philosophy (Crop Science), and Doctor of Philosophy (Soil Science). Students can select from several options of study to fit their career objectives and needs.

Students are encouraged to participate as part-time employees in research programs and seek professional internships for applied learning experiences. Departmental and college scholarships are available based on ability, need, and interest. Students gain professional and social contacts with the faculty and other students through the student club activities.

CROPSCIENCE

Crop scientists and agronomists are involved in improving food, feed and fiber production. They study metabolic and developmental processes of crop plants and seeds, develop improved crop varieties through plant breeding and biotechnology, design sustainable crop production and management systems which conserve natural resources while enhancing crop yields, and investigate the impact of cropping practices on the environment.
systems on agricultural and nonagricultural ecosystems. Turf management opportunities include golf course management, recreational facilities, and lawn care. Graduates qualify for careers in agribusiness, corporate and technical farm management, professional consulting, research, sales, plant biotechnology, and service positions. Positions are available in government and commercial agencies such as USDA’s Agricultural Research Service, Soil Conservation Service and Cooperative Extension, the Environmental Protection Agency or Washington Department of Ecology, state Departments of Agriculture and Natural Resources, as well as in food processing companies, insurance agencies, and commercial concerns dealing with farm products, fertilizers and agricultural chemicals and seeds. Opportunities also exist for employment and further study in international agriculture such as through the US Agency for International Development (USAID) and World Bank, international research institutes, and the US Peace Corps. Teaching, research, and extension careers are available in community colleges and universities for graduates with advanced degrees.

An interdisciplinary curriculum in integrated pest management is available to those students whose interests span the areas of crop science and pest management. This curriculum is described under the entomology section of this bulletin.

SOIL SCIENCE

Soil scientists are concerned with the physical, chemical, and biological processes that govern natural, agronomic, and disturbed systems. The study of soil science stresses an understanding of these fundamental processes as they apply to crop production, soil development, and environmental quality. Some of the areas of active interest include identification and transfer of best management practices for crop production, erosion control, and environmental protection; reclamation of contaminated soils; transport of pesticides through soils; bioremediation of hazardous wastes; use of microbes to control weeds and plant diseases; surface chemistry of soil minerals; modeling of cropping systems; remote sensing of soils and vegetation; and strategies in precision farming.

Graduates qualify for careers in agribusiness, consulting, waste management, research, and service positions. Positions are available with private consulting firms and commercial concerns dealing with farm products. In addition, government agencies including Agricultural Research and Extension, Agricultural Research Service, Departments of Agriculture, Natural Resources and Ecology, and the Natural Resource Conservation Service have need of soil science graduates. Opportunities also exist in international development.

**Crop Science Degree Program Requirements**

<table>
<thead>
<tr>
<th>Hours</th>
<th>First Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Bio S 103 [B] (GER)</td>
</tr>
<tr>
<td>4</td>
<td>Chem 101 [P] or 105 [P] (GER)</td>
</tr>
<tr>
<td>3</td>
<td>CropS 101</td>
</tr>
<tr>
<td>3</td>
<td>Engl 101 [W] (GER)</td>
</tr>
<tr>
<td>3</td>
<td>Math 107</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hours</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Bio S 104 [B] or Bot 120 [B] (GER)</td>
</tr>
<tr>
<td>4</td>
<td>Chem 102 [P] or 106 [P] (GER)</td>
</tr>
<tr>
<td>3</td>
<td>HD 205 [C] or SpCom 102 [C] (GER)</td>
</tr>
<tr>
<td>4</td>
<td>Math 140 [N] or 171 [N] (GER)</td>
</tr>
</tbody>
</table>

1 Based on the mathematics placement exam scores, students may not need to enroll in Math 107

**CROPPING SYSTEMS MANAGEMENT AND BUSINESS DEGREE PROGRAM (124 HOURS)**

For students who wish to engage in farming, corporate farm management, production specialist positions, consulting, international careers, and agribusiness.

<table>
<thead>
<tr>
<th>Hours</th>
<th>First Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Ag Ec 201 [S] or Econ [S] (GER)</td>
</tr>
<tr>
<td>4</td>
<td>Chem 240</td>
</tr>
<tr>
<td>3</td>
<td>CropS 201</td>
</tr>
<tr>
<td>3</td>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
</tr>
<tr>
<td>3</td>
<td>SoilS 201 [B] (GER)</td>
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</table>

<table>
<thead>
<tr>
<th>Hours</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Ag Ec 210</td>
</tr>
<tr>
<td>3</td>
<td>Arts &amp; Humanities [H,G] (GER)</td>
</tr>
<tr>
<td>4</td>
<td>Bot 320</td>
</tr>
<tr>
<td>3</td>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
</tr>
<tr>
<td>3</td>
<td>Intercultural [I,G,K] (GER)</td>
</tr>
</tbody>
</table>

**TURF MANAGEMENT DEGREE PROGRAM (124 HOURS)**

For students who wish to specialize in golf course management, recreational facilities, and lawn care.

<table>
<thead>
<tr>
<th>Hours</th>
<th>First Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>CropS 305</td>
</tr>
<tr>
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<tr>
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**Senior Year**

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<td>SoilS 442</td>
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**FYDA**

For students who wish to emphasize pest control and environmental quality in cropping systems.

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<td>SoilS 441</td>
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**Junior Year**

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<td>GenCB 301</td>
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<td>2</td>
<td>SoilS 442</td>
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<tr>
<td>3 or 4</td>
<td>Stat 421 or 412</td>
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</tbody>
</table>

**FYDA**

For students who wish to specialize in golf course supervision, grounds maintenance, and similar rec-
reaction positions involving turfgrass management techniques and personnel relations.

**Sophomore Year**

**First Semester**
- Intercultural (I,G,K) (GER) 3
- Chem 240 4
- CropS 201 3
- GenEd 110 [A] or 111 [A] (GER) 3
- SoilS 201 [B] (GER) 3

**Second Semester**
- Ag Ec 201 [S] or Econ [S] (GER) 3
- CropS 305 3
- CropS 411 [M] 3
- SoilS 421 or 441 3
- Elective 3

**Junior Year**

**First Semester**
- Minors: 1
- Social Sciences [S,K] (GER) 3
- One from: AgTM 315, CropS 410, Hort 232, or 331 3
- Entom 340 or 343 3
- Hort 231 or LA 264 3
- SoilS 301 3
- Complete Writing Portfolio 3

**Second Semester**
- CropS 305 3
- CropS 411 [M] 3
- SoilS 442 2
- CropS Elective 3
- Complete Writing Portfolio 3

**Senior Year**

**First Semester**
- Agronomy and Mgt Elective 3
- AgTM 346 2
- CropS 412 3
- CropS 445 [M] 3
- SoilS 498 or 499 3
- SoilS Elective 2
- Complete Writing Portfolio 3

**Second Semester**
- SoilS Elective 2
- Tier III Capstone (GER) 3

**SCIENCE/BIOENGINEERING DEGREE PROGRAM (126 HOURS)**

- Ag Ec 201 [S] or Econ [S] (GER) 3
- CropS 305 3
- CropS 411 [M] 3
- SoilS 442 2
- Stat 212 or 412 3 or 4

**SOILS DEGREE PROGRAM (126 HOURS)**

- Agronomy and Mgt Elective 3
- SoilS 301 3
- SoilS 421 or 441 3
- Tier III Capstone (GER) 3

**Sophomore Year**

**First Semester**
- Social Sciences [S,K] (GER) 3
- CropS Elective 3
- GenCB 301 4
- PI P 429 3
- SoilS Elective 2

**Second Semester**
- CropS Elective 3
- SoilS Elective 2
- Complete Writing Portfolio 3

**Senior Year**

**First Semester**
- Minors: 1
- Social Sciences [S,K] (GER) 3
- One from: AgTM 315, CropS 410, Hort 232, or 331 3
- Entom 340 or 343 3
- Hort 231 or LA 264 3
- SoilS 301 3
- Complete Writing Portfolio 3

**Second Semester**
- CropS 305 3
- CropS 411 [M] 3
- SoilS 442 2
- Stat 212 or 412 3 or 4
- Tier III Capstone (GER) 3

**MINOR IN CROP SCIENCE**

A minor in crop science may be obtained by students from other departments. See crop science advisor.

**Transfer Students**

Students planning to transfer to Washington State University should take courses which meet crop science core requirements.

**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 crop science includes course work outlined under one of the above options with a strong emphasis in plant sciences, chemistry, computer science, mathematics, and statistics.

**Soil Science Degree Program Requirements**

Honors students complete Honors Requirements in place of General Education Requirements.

A Bachelor of Science degree in Soil Science requires completion of an area of specialization in environmental soil science, soil management, or sustainable agriculture. Each degree program is designed to meet the specific needs of the individual. At least 40 of the total hours required for the bachelor’s degree in this program must be in 300-400-level courses.

The flexibility of this major makes possible a wide variety of career opportunities as well as thorough preparation for graduate school. Examples of vocational opportunities include soil management positions with agribusiness, commercial farms, and land appraisal firms, soil conservation positions with the state and federal government, and technical positions with universities. In addition, many soil scientists go into some area of public service and international agriculture.

**FIRST YEAR REQUIREMENTS**

The first year requirements are common to all soil science majors.

**Freshman Year**

**First Semester**
- Math 107 3
- Micro 101 [W] (GER) 3
- GenEd 110 [A] or 111 [A] (GER) 3
- Math 107 3
### Second Semester Hours
- **Bio S 104 [B] or Bot 120 [B] (GER)** 4
- **Chem 106 [P] (GER)** 4
- **GenCB 210** 3
- **GenEd 110 [A] or 111 [A] (GER)** 3
- **Math 140 [N] or 171 [N] (GER)** 4
- **Phys 101 [P] or 201 [P] (GER)** 4
- **SoilS 201 [B] (GER)** 3
- **SoilS 301 [M]** 3
- **Electives** 8

#### Junior Year

**Second Semester Hours**
- **GenEd 110 [A]** 3
- **GenEd 111 [A] (GER)** 3
- **Math 140 [N]** 4
- **Math 171 [N]** 4
- **Physics 106 (GER)** 4
- **Bio S 104 [B]** 3
- **Bot 120 [B]** 3
- **Electives** 8

**Sophomore Year**

**First Semester Hours**
- **Ag Ec 210** 3
- **Cpt S 405** 3
- **Geol 102 [P]** 4
- **SoilS 301 [M]** 3
- **Complete Writing Portfolio** 3

**Second Semester Hours**
- **Bio S 104** 3
- **Chem 106** 3
- **GenCB 210** 3
- **GenEd 110 [A]** 3
- **GenEd 111 [A] (GER)** 3
- **Math 140 [N]** 4
- **Math 171 [N]** 4
- **Physics 106 (GER)** 4
- **Bio S 104 [B]** 3
- **Bot 120 [B]** 3
- **Electives** 8

**First Semester**

- **GenEd 110 [A]** 3
- **GenEd 111 [A] (GER)** 3
- **Math 140 [N]** 4
- **Math 171 [N]** 4
- **Physics 106 (GER)** 4
- **Bio S 104 [B]** 3
- **Bot 120 [B]** 3
- **Electives** 8

#### Senior Year

**First Semester Hours**
- **SoilS 442** 3
- **SoilS 441** 3
- **SoilS 421** 3
- **Stat 212 or 412** 3 or 4
- **Intercultural [I,G,K]** (GER) 3
- **Social Sciences [S,K]** (GER) 3
- **Electives** 3

**Second Semester Hours**
- **SoilS 490** 1
- **SoilS 462** 3
- **SoilS 451 [M]** 3
- **SoilS 441** 3
- **SoilS 442** 3

**First Semester**

- **SoilS 360** 3
- **SoilS 301 [M]** 3
- **SoilS 360** 3
- **Complete Writing Portfolio** 3

**Second Semester**

- **Bio S 374 or 474** 3
- **Electives** 3

#### SUSTAINABLE AGRICULTURE DEGREE PROGRAM (125 HOURS)

This option integrates concepts of biodiversity, cropping systems, farm management, soil quality, and agroecology.

#### Minor in Soil Science

A minor in soil science may be obtained by students from other departments. Sixteen semester hours in soils is required, at least 8 of which must be in 300-400-level courses.

### 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 soil science includes course work outlined under one of the above options plus completion of Math 171, Phys 102 or 202, and, if not specified in the option, Chem 240.

### Description of Courses

#### Crop Science

- **CropS**
  - **101 Introductory Field Crop Science** 3 Production and adaptation of cultivated crops; principles affecting growth, development, management, and utilization.
  - **201 Growth and Development of World Crop Plants** 4 (2-6) Prereq CropS 101 or c//. Ontogeny of temperate and tropical crop plants; basics of crop evolution, distribution, anatomy, morphology, and physiology.
  - **301 Turfgrass Culture** 3 (2-3) Prereq one semester of Bio S, Bot, or Hort. Principles of establishment and management of turf for lawns, parks, and golf courses. Field trip required. Cooperative course taught by WSU, open to UI students (PlSc 301).
  - **302 Forage Crops** 3 (2-3) Prereq Bio S 104 or Bot 120. Adaptation, production, and utilization of forage crops. Field trip required.
  - **303 Cropping Systems** 3 Prereq Bio S 104 or Bot 120; CropS 201. Management principles for sustainability of rainfed and irrigated agronomic cropping systems. Field trips required.
  - **305 Principles of Weed Science** 3 (2-3) Prereq Bio S 104, Bot 120, CropS 101, 201, or Hort 101 or 201; Chem 240. Weed science; weed identification, biology and control; herbicides and factors influencing their use.
360 [I] World Agricultural Systems 3 Prereq two semesters physical or biological sciences. Study of agro-environmental characteristics of world agriculture; historical and contemporary features of world food production.

410 Seed Science and Technology 3 (2-3) Prereq Bio S 104 or Bot 120; Bot 320. Principles of seed biology; development and physiology; seed quality evaluation. Cooperative course taught by WSU, open to UI students (PISC 411).


412 Seminar 1 May be repeated for credit. Current literature and reports on research or special topics.

420 Biology of Weeds 3 Prereq Bot 320. Biology, ecology, and physiology of weeds; crop and weed interactions and interference. Credit not granted for both CropS 413 and 513. Cooperative course taught by UI (PISC 410), open to WSU students.

445 [M] Plant Breeding 3 Prereq GenCB 301. Genetic principles applied to the improvement of plants.

469 Seed Production 3 Prereq CropS 201 or Hort 201. Principles and practices of seed production, seed quality evaluation and survey of seed industry. Field trip required. Cooperative course taught by WSU, open to UI students (PISC 469).

498 Professional Internship V 1-3 May be repeated for credit; cumulative maximum 9 hours. Planned and supervised professional work experience. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

504 Plant Transmission Genetics 3 Prereq GenCB 301. Transmission of genes across generations; detailed study of the basic laws of genetics to predict and describe inheritance. Cooperative course taught by WSU, open to UI students (PISC 507).

505 Molecular Approaches for Improving Crop Quality and Adaptation 3 Prereq BC/BP 364 or Bot 320; CropS 445. Characterization and principles of improving crop quality and adaptation traits with emphasis on molecular breeding strategies. Cooperative course taught by WSU, open to UI students (PISC 515).

508 Advanced Crop Physiology I 3 Prereq BC/BP 364. Physiological responses of crops to light, water and temperature; physiology of seed germination and root and shoot development. Cooperative course taught by WSU, open to UI students (PISC 508).

509 Advanced Crop Physiology II 3 Prereq Bot 320, GenCB 301. Physiology and genetics of plant hormones, carbon and nitrogen assimilation and partitioning, and seed development. Cooperative course taught by WSU, open to UI students (PISC 509).

510 Seminar 1 May be repeated for credit. Literature review; preparation and presentation of reports in crop science.

512 Topics in Crop Science 1 or 2 May be repeated for credit. Concepts of plant breeding, seed physiology, and technology; crop physiology and management.

513 Biology of Weeds 3 Graduate-level counterpart of CropS 413, additional requirements. Credit not granted for both CropS 413 and 513.

520 Plant Cyto genetic Techniques 3 (1-6) Prereq GenCB 301. Plant genes and chromosomes. Cooperative course taught by UI (PISC 520), open to WSU students.

527 Experimental Methods in Weed Science 2 (1-3) Prereq Bot 320. Hands-on exposure to methods and instrumentation commonly used in weed science research; emphasis on laboratory techniques with herbicides. Cooperative course taught by WSU, open to UI students (PISC 527).

533 Plant Tissue, Cell and Organ Culture 3 (1-6) Same as Hort 533.

536 Plant Genetic Engineering Laboratory 2 (0-6) Prereq Bot 325. Experiments: synthesis and cloning of a gene, expression of a heterologous protein in yeast and barley.

539 Herbicide Fate and Mode of Action 4 Prereq CropS 305, BC/BP 364, Bot 320. Fate of herbicides in plants, soil, and water; physiological and biochemical mode of herbicide action; mechanisms of herbicide resistance. Cooperative course taught jointly by WSU and UI (PISC 539).

546 Plant Breeding 3 Prereq GenCB 301. Principles and practices of genetic plant improvement. Cooperative course taught by UI (PISC 546), open to WSU students.

556 Insecticides: Toxicology and Mode of Action 1 Same as Entom 556.

572 Herbs: Toxicology and Mode of Action 1 Same as Entom 557.

575 Herbicides: Toxicology and Mode of Action 1 Same as Entom 558.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Description of Courses

Soil Science

SoilS 201 [I] Soil: A Living System 3 Prereq Chem 102. Physical, chemical, and physical properties of soils; fundamentals of soil ecology, soil-water relationships, soil fertility, and soil genesis.

301 [M] Land Use and Soil Management 3 Prereq SoilS 201. Soil and water conservation and management; land classification and reclamation; soils and environmental quality; sustainable agroecosystems.


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. 412 Seminar 1 Same as CropS 412.

413 Introduction to Soil Physics 3 (2-3) Prereq Math 107; SoilS 201. Characterization of soil properties including water content and potential, and hydraulic conductivity; modeling water, solute transport, erosion, contamination of groundwater.

414 Environmental Biophysics 2 Prereq Math 107. Physical environment of living organisms (temperature, humidity, radiation, wind); heat and mass exchange and balance in plant and animal systems. Cooperative course taught by WSU, open to UI students (Bot 435). Credit not granted for both SoilS 414 and 514.

415 Environmental Biophysics Laboratory 1 (0-3) Prereq SoilS 414 or c/. Experimental methods and procedures in environmental measurements; temperature, wind, radiation, and humidity measurements in biological environments. Cooperative course taught by WSU, open to UI students (Bot 436). Credit not granted for both SoilS 415 and 515.

421 Environmental Soil Chemistry 3 Prereq Chem 105, 106, SoilS 201. Soil constituents; soil solutions: mineral equilibria; absorption reactions; acid/base reactions; oxidation-reduction; soil contaminants. Credit not granted for both SoilS 421 and 521.

431 Soil Biology 3 (2-3) Prereq Micro 101 or 201; SoilS 201. Basic aspects and significance of soil biology as related to soil ecology, soil biology, plant growth, and environmental problems.

441 Soil Fertility 3 Prereq CropS 201. Nutrient management impacts on crop productivity, soil and water quality; mineral requirements; soil testing; plant analysis; inorganic and organic fertilizers.

442 Soil Analysis for Environmental and Crop Management 3 (2-3) Prereq SoilS 421, 441, or c/. Analysis and amendment of soils for plant growth and toxicity.


462 Systems in Integrated Crop Management 3 (2-3) Same as Entom 462. Credit not granted for both SoilS 462 and 562.

474 Airphotos and Geomorphology 3 (2-3) Prereq physical geology. Remote sensing and photointerpretation methods applied to terrain landforms, soils, land use, vegetation. Cooperative course taught by WSU, open to UI students (For 415).

490 Composting 1 Composting industry, including biology, methods, benefits, management, regulations, and environmental concerns.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Seminar 1 May be repeated for credit. Presentation of research information.

502 Advanced Topics in Soils 1 or 2 May be repeated for credit; cumulative maximum 4 hours. Interpretation, presentation, and discussion of current research on soils, uses, and management.

503 Advanced Soil Analysis V 1-3 May be repeated for credit; cumulative maximum 6 hours. By interview only. Soil research techniques; application of modern instrumentation to soil analysis.

504 Research Presentation Techniques 1 Preparation of visual aids and oral presentation of research findings. S, F grading.

505 Teaching Practicum 1 May be repeated for credit; cumulative maximum 4 hours. Supervised experience in classroom teaching; classroom preparation for lectures, discussions, laboratories; preparation and grading of exams. S, F grading.
Models for Vadose Zone Transport 2 Prereq SoilS 413. Numerical methods and computer models for water, heat, vapor, and solute transport in soils; measuring spatial and temporal variability. Cooperative course taught by WSU, open to UI students (SoilS 513).

Environmental Biophysics 2 Graduate-level counterpart of SoilS 414; additional requirements. Credit not granted for both SoilS 414 and 514. Cooperative course taught by WSU, open to UI students (Bot 435).

Environmental Biophysics Laboratory 1(0-3) Prereq SoilS 514 or c/l. Graduate-level counterpart of SoilS 415; additional requirements. Credit not granted for both SoilS 415 and 515.

Fate and Effects of Environmental Contaminants 3 Same as ES/RP 517.

Environmental Soil Chemistry 3 Graduate-level counterpart of SoilS 421; additional requirements. Credit not granted for both SoilS 421 and 521.

Soil Mineralogy 2 (1-3) Prereq Soils 421, 451. Distribution and significance of soils minerals; weathering and reactivity of mineral structures; techniques of mineral identification including x-ray diffraction, chemical dissolution, optical and electron microscopy. Cooperative course taught by UI (SoilS 526), open to WSU students.

Advanced Soil Biochemistry and Microbiology 2 May be repeated for credit; cumulative maximum 4 hours. Prereq BC/BD 364; SoilS 421, 431. Biochemical and microbiological processes in soil-water environments; nutrient cycling; pesticide behavior; agricultural waste disposal; nitrogen fixation; advanced techniques. Cooperative course taught by WSU, open to UI students (SoilS 531).

Soil Biochemistry 3 (2-3) Prereq BC/BD 364; Micro 201; SoilS 421. Enzyme activity; microbial activity/biomass; rhizosphere; carbon, nitrogen phosphorus, sulfur, and micronutrient cycles. Cooperative course taught by UI (SoilS 537), open to WSU students.

Soil-Plant-Microbial Interactions 3 Prereq SoilS 421, 431, or 441. Soil-plant-microbial relationships to plant nutrition, plant health, and environmental cleanup; rhizosphere chemistry and microbial ecology. Cooperative course taught by UI, open to UI students (SoilS 541).

Soil Fertility Management 3 Prereq SoilS 441. Philosophy of fertilizer recommendations based on soil and plant tissue testing; principles of fertilizer manufacturer, placement and use. Cooperative course taught by UI (SoilS 547), open to WSU students.

Advanced Pedology 3 Prereq SoilS 451. Origin and development of soil; geochemical and biochemical weathering processes; dynamics of organic matter; soil development cycles. Cooperative course taught by WSU, open to UI students (SoilS 551).

Advanced Soil Genesis and Classification 3 (2-3) Prereq SoilS 451. Genesis, classification and interpretation of soils, including field investigation emphasizing existing interrelationships. Cooperative course taught by UI (SoilS 557), open to WSU students.

Systems in Integrated Crop Management 3 (2-3) Graduate-level counterpart of SoilS 462; additional requirements. Credit not granted for both SoilS 462 and 562.

Advanced Remote Sensing 3 (1-4) Prereq basic remote sensing. Digital image processing theory and the techniques applied to satellite and other remote sensing systems. Cooperative course taught jointly by WSU and UI (For 572).

Seminar in Remote Sensing 1 Presentation of research results and ideas on subjects relating to remote sensing.

Special Projects or Independent Study 3 Prereq SoilS 462 and 562. Credit not granted for both SoilS 462 and 514.

Master’s Research, Thesis, and/or Examination 3 Prereq SoilS 547, open to WSU students.

Master’s Special Problems, Directed Study, and/or Examination 3 Prereq SoilS 547, open to WSU students.

Doctoral Research, Dissertation, and/or Examination 3 Prereq SoilS 547, open to WSU students.

Department of Economics


The curriculum in economics addresses the disturbing problem that most of the American public’s knowledge of basic economic forces is sadly deficient. Knowledge of economics is a prerequisite for many career fields. The course of study for economic majors is sufficiently flexible to accommodate students with a variety of career interests, including business, law, government, education, public administration, and general economics. The undergraduate economics major is also excellent preparation for graduate study in many fields, such as business, law, and economics. Courses of study in economics allow sufficient time for electing courses outside the department while meeting all departmental requirements and General Education Requirements.

The department offers courses of study leading to the degrees of Bachelor of Arts in Economics, Bachelor of Arts in Business, Master of Arts in Economics, and Doctor of Philosophy.

Certification Requirements

Students who have completed at least 30 semester credits, including at least 6 credits of economics core courses, and meet the university’s minimum g.p.a. requirement of 2.0 are eligible to apply for certification with the Department of Economics.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

During the freshman and sophomore years the economics major should normally begin economics courses and complete a major portion of the General Education Requirements. In the junior and senior year the economics major might choose from a variety of courses to prepare for employment or postgraduate education. Majors must complete courses in the following area

Core: Econ 101 (or 198), 102 (or 198); 301 or 302; 311, 401, one Econ 400 elective, 490, three 300-400-level Econ electives.

Fields: 12 hours of 300-400-level Econ and/or related courses, at least 6 hours of which must be at the 400 level.

Mathematics: One of: Math 140, 171, 202, or 206.

The chair of the department and/or the dean of the college must approve in writing any portion of the 300-400-level credit which is to be satisfied by transfer, correspondence, independent study, or other credit which may not carry WSU grade points. 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 a course offered by the CBE may be taken pass, fail.

An honors thesis is required for Honors students.

Options in Economics

Students majoring in economics and satisfying the core, field, and math requirements may elect, in consultation with their major advisor, to self-design an additional 12-hour area of specialization or to choose from one of the 12-hour options below.

Economics of Financial Markets. Econ 320, 420; Fin 325, one of Econ 411, 499; Fin 421, 422, 425, 427.

Economics of Public Policy. Econ 340, 499; two of Econ 320, 345, 350, 360, 411, 420, 450, 455, 460, 481.

International Economic Development. Two of Econ 416, 418, 470, 472; two of Ag Ec 420, 425; Anth 418, 419; Econ 499, ES/RP 450, I Bus 380, 481, 482; Pol S 460.

Labor Economics. Econ 350, 450; two of Econ 312, 455, 499; Mgt 450, 456.


Preparation for Graduate Study. 12 hours of 300-400-level courses.

The FYDA schedule below allows students to complete any of the options within the Economics Department.

General Program Requirements

Students in the College of Business and Economics must demonstrate performance at a level expected of seniors in their major by presenting WSU graded course work to satisfy at least 75% of the 300-400-level courses required by the major program. The chair of the department and the dean of the college must approve in writing any portion of 300-400-level credits which is to be satisfied by transfer, correspondence, independent study, or other credit which does not carry WSU grade points. 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.

ECONOMICS DEGREE PROGRAM (120 HOURS) 

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Hours</th>
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<tr>
<td>Econ 101 [SI] (GER)</td>
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<tr>
<td>Engl 101 [WI] (GER)</td>
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Minor in Economics

A minor in economics is often a desirable complement to majors such as business administration, engineering, education, agricultural economics, forestry, political science, and history. A minor in economics is offered to students who complete 18 hours of economics. Consult the department for an acceptable program of study.

Minor in Sustainable Development

The intent of the interdisciplinary minor in sustainable development is to address how economic and social systems interact with major resource and environmental issues, both internationally and in this country. The minor requires 18 credit hours, with at least 9 hours at the 300-400 level. All coursework for the minor must be graded and a minimum g.p.a. of 2.0 shall be maintained. The minor is open to students from any department and in any major. Students wishing to apply for the minor may do so with the College of Business and Economics.

Courses must include I Bus 375 (3 credits) and a selection of at least 2 credits each from the following aspect areas: policy, history, theory; environmental aspects; social/cultural aspects; and economic aspects. A listing of the approved courses in each aspect area is available from the College of Business and Economics, or from advisors in architecture, international business, sociology, natural resource sciences, and environmental science and regional planning.

Students should work with their major advisors to determine courses that are most appropriate to their majors and interests.

Bachelor of Arts in Business, Economics Major

A degree in business with a major in economics is also available. Students in this program take business core courses in accounting, business law, decision sciences, finance, management, and marketing along with 24 hours of economics courses. For certification requirements, please refer to the business administration section of this catalog. Students planning to begin a career immediately after graduation will find openings in many areas of business and government. Special programs of study for particular areas can be developed with the departmental advisors.

Preparation for Graduate Study

Better economics programs expect calculus through vector calculus (Math 171, 172, 273), linear algebra (Math 220), and econometrics (Econ 311 or 411). Students planning on graduate study in economics are urged to select an appropriate program of study, including a self-designed additional 12 hours, in consultation with a member of the faculty of the Department of Economics.

Students planning graduate study, whether in economics, law, business, or public administration, are advised to develop skills through courses in English composition and additional work in statistics. Recommendations for specific graduate areas include:

Law School: Acctg 230; B Law 210; Pol S 300; and, depending on legal interests, elective Econ courses from the following: Econ 340, 364, 450, 460, 470, 481; B Law 410, 411 suggested.

Business School: Acctg 230; MIS 350. Additional courses in business are not required for admission to most graduate schools of business. It might be useful, however, to take a second course in accounting, Acctg 231, and to take introductory courses in the major areas of business: B Law 210, Fin 325, Mgt 301, Dec S 340, Mktg 360.

Economics: Math 171 and 220 are recommended to satisfy the major’s math requirements. Calculus through Math 273 and Econ 408 may also be useful.


Transfer Students

Students planning to transfer into economics by the end of their sophomore year should have completed the introductory economics courses if they plan to complete the required work for a degree in two additional years.

Description of Courses

Econ

101 [S] Fundamentals of Microeconomics

Theory and policy of human responses to scarcity; how this affects business competition, international trade, industrial organization, investment, income distribution.

102 [S] Fundamentals of Macroeconomics

Theory and policy related to unemployment, inflation, foreign trade, government spending, taxation, and banking.

198 [S] Economics Honors

3 Introduction to economic theory and policy issues.

301 Theory of the Firm and Market Policy

Prereq Econ 101. Price determination and market behavior under different market structures and the problems posed for public policy; not calculus-based. Credit not granted for both Econ 301 and 302.

302 Intermediate Microeconomic Theory

Prereq Econ 101; Math 171 or 202. Calculus-based intermediate microeconomic theory for majors in economics and agricultural economics. Credit not granted for both Econ 301 and 302.

311 Introductory Econometrics

Prereq Econ 101, 102. Methods of empirical analysis in the context of economic analysis and forecasting problems. Credit not granted for both Econ 311 and 411.

312 [M] Applied Econometrics

Prereq Econ 311. Applied empirical methods for economic analysis.

320 Money and Banking

Prereq Econ 102. Analysis of banking institutions and monetary policy in the US, with comparison to abroad.

325 (255) Economics of Sports in America

Prereq Econ 101. Economic aspects of American sports; fan demand; advertising; team output decisions; league/conference organization; government and sports.

340 [M] Public Finance and Taxation

Prereq Econ 101, 102. Theory and practice of the public sector; taxes, expenditures, and administration at local, state, and federal levels.

345 Public Policy Analysis

Prereq Econ 101, 102. Economic impact of public policy on business; health care, environment, airline deregulation, trade, and growth.

350 Labor Economics and Problems

Prereq Econ 101. Functioning of labor markets; introduction to collective bargaining and labor law.

360 Regulation in American Society

Prereq Econ 101. Economic and political analysis of the origins, development, and application of government regulation.

364 Transport Economics

Prereq Econ 301. Characteristics of transportation systems; market structure; public policy of transport logistics.

375 Aspects of Sustainable Development

Prereq junior standing. Ecological, economical, and sociological aspects of sustainable development.

397 Topics - Study Abroad

3 Special topics in economics taught in NCSA study abroad programs.

Open only to students in the Honors Program.
401 Intermediate Macroeconomic Analysis 3
Prereq Econ 320; Rec Math 171 or 202. Income, employment, and inflation theory with policy implications.

402 History of Economic Thought 3
Prereq Econ 102. Development of economic thought; special focus on selected schools, including Greeks, scholastics, mercantilists, physiocrats, classicals, and neo-classicals. Cooperative course taught by UI (Econ 455), open to WSU students.

408 Mathematics for Economists 3
Same as Math 408.

410 Elements of Mathematical Economics 3
Prereq Econ 301; Math 273. Introduction to mathematical optimization in economic theory.

411 [M] Introduction to Econometrics 3
Prereq Dec S 215, or Stat 443; Econ 101. Econometric methods in relation to the substantive achievements of empirical econometrics. Credit not granted for both Econ 311 and 411.

416 Comparative Economic Systems 3
Prereq Econ 102. Key institutions, policies, and economic performance of different capitalist and socialist systems; transition of Soviet-type socialist economies, Eastern Europe; capitalism as a global system.

418 [S] Global Capitalism Today: Perspectives and Issues 3
Prereq GenEd 111; Econ 101 or 102. Logic and consequences of capitalism as global system; multinational corporations; underdevelopment and overdevelopment; external debt, population, and environmental crisis.

420 Monetary Theory and Policy 3
Prereq Econ 320. Current issues in monetary economics with a special emphasis on policy.

430 [M] American Economic History 3
Prereq Econ 101 or 102; Rec Econ 301. Development and changes in the American economy from the colonial period to the present.

450 Collective Bargaining 3
Collective bargaining from an economic perspective: union-management negotiations in the U.S. private sector.

451 Introduction to Micro and Macroeconomics 3
Prereq admission to MBA program. Topics in calculus and principles of micro and macro economics for entering MBA students.

455 The Economics of Health Care 3
Prereq Econ 101. The economics of allocating, financing and delivering medical care services. Cooperative course taught by WSU, open to UI students (Econ 450).

460 Corporations of Corporate Power and Antitrust Policy 3
Prereq Econ 101. Extent, causes, and effects of economic power held by US corporations; antitrust laws and other legislation and regulating business practices.

464 Freight Transportation Economics 3
Prereq Econ 301, 311. Analysis of market structure, conduct, and performance of the intercity freight transportation industry.

470 International Trade and Finance 3
Prereq Econ 102. Analysis and description of international trade flows; commercial policy; multinational firms, foreign exchange markets; open economy macroeconomics; international monetary systems.

471 Economics of Regional Integration 3
Prereq Econ 102. Economic and political issues of regional integration and economic reforms in Western Europe, North America, East Asia, Eastern Europe and Russia.

472 Economic Development and Underdevelopment 3
Prereq Econ 102; Rec Econ 301. Development theories, policies, and performance of Third World economies; population, land reform, foreign trade, aid, investment, debt, dependency.

475 Regional/Urban Economics 3
Prereq Econ 101, 102. Location of economic activity, transportation problems, resource and product distribution methods; urban structure and growth, and related policy issues. Cooperative course taught by UI (Econ 430), open to WSU students.

481 Economics of Environmental Issues 3
Prereq Econ 101; Rec Econ 301. Environmental inter-actions; efficient allocation of environmental resources; market failure and environmental degradation; economic analysis of environmental policies.

490 [M] Economics Capstone 3
Prereq senior in Econ, completion of Econ core. Integration of economic theory and field courses; assessment.

497 Economics Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. Professional off-campus internships arranged or coordinated by departmental faculty according to student's field of specialization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

500 Macroeconomic Analysis 3
Prereq Econ 401; 408 or one year calculus or c/l in Econ 408. General equilibrium theories of aggregate output and the price level; consumption, investment and money demand functions; monetary and fiscal policy; business cycles, and rational expectations. Cooperative course taught by WSU, open to UI students (Econ 522).

501 Microeconomic Theory 3
Prereq Econ 301; 408, one year calculus, or c/l in Econ 408. Static optimization; theory of the consumer and the firm; markets and resource allocation.

502 Advanced Macroeconomic Theory 3
Prereq Econ 500. Mathematical macro general equilibrium theory.

503 Advanced Microeconomic Theory 3

510 Mathematical Models of Economics 3
May be repeated for credit; cumulative maximum 6 hours. Prereq Econ 503. Exposition of the mathematical structure of economic theories.

511 Econometrics 3
Prereq Ag Ec 510, Stat 443 or 548. Econometric models; review of linear model; introduction to large sample theory; simultaneous equations modeling.

512 Advanced Econometrics 3
Prereq Econ 511. Advanced topics in econometrics.

520 Seminar in Monetary Economics 3
May be repeated for credit; cumulative maximum 6 hours. Prereq Econ 501, 502. Analysis of money demand models, money supply models, and the role of money in a modern economy.

530 Economic History 3
May be repeated for credit; cumulative maximum 6 hours. Prereq Econ 411 or 511; Rec Econ 501. Changes in the American economy; introduction to the new economic history.

540 Advanced Public Finance 3
May be repeated for credit; cumulative maximum 6 hours. Prereq Econ 503. Positive effects of government policy, optimal tax theory; public goods; social choice theory; cost-benefit analysis.

552 Labor Theory 3
May be repeated for credit; cumulative maximum 6 hours. Developments in labor theory; wage theory and recent journal literature.

560 Seminar in Industrial Organization 3
May be repeated for credit; cumulative maximum 6 hours. Prereq Econ 460. Industrial organization, market conduct, and performance; appraisal of antitrust legislation.

570 International Factor Movement 3
Prereq Econ 470, 501. The basic nonmonetary theory; new theories of international trade; tariffs and commercial policy; effects of economic integration; international movements factor.

571 Monetary Aspects of International Economics 3
Prereq Econ 470, 500. Balance-of-payments; adjustment to payments imbalance; the foreign exchange market; open economy macroeconomic models and macroeconomic policy coordination; international monetary institutions.

572 Theoretical and Institutional Aspects of Economic Development 3
May be repeated for credit; cumulative maximum 6 hours. Prereq Econ 500. Selected topics in the political economy of developing nations.

590 Special Topics in Economics 3
May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing.

592 Managerial Economics for Decision Making 3
Prereq Econ 101, 102; Math 202. Optimal economic decision making for business in a global environment. Not available for credit for economics graduate students.

600 Special Projects or Independent Study 3
May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing.

700 Master's Research, Thesis, and/or Examination 3
May be repeated for credit; cumulative maximum 6 hours. Prereq senior in Econ, completion of Econ core. Integration of economic models and macroeconomic policy coordination; international monetary institutions.

702 Master's Special Problems, Directed Study, and/or Examination 3
May be repeated for credit; cumulative maximum 6 hours. Prereq senior in Econ, completion of Econ core. Integration of economic models and macroeconomic policy coordination; international monetary institutions.

800 Doctoral Research, Dissertation, and/or Examination 3
May be repeated for credit; cumulative maximum 6 hours. Prereq senior in Econ, completion of Econ core. Integration of economic models and macroeconomic policy coordination; international monetary institutions.

Department of Educational Leadership and Counseling Psychology


The department offers courses of study leading to a Bachelor of Arts in Sport Management, undergraduate minors in leadership studies and sport management, graduate degrees of Master of Education, Master of Arts in Education, Doctor of Education and Doctor of Philosophy (Education). For the master’s and doctoral degrees, students may specialize in athletic administration, administration, higher education, curriculum and instruction, counseling (master’s level), counseling psychology (PhD level), and educational psychology (master’s, EdD, and PhD levels). Each area of specialization has a required core of courses. Information on the specific requirements for each degree is available from the Department of Educational Leadership and Counseling Psychology.
Admission to Graduate Study (Educational Administration)

Admission to the graduate programs in educational administration will be determined as soon as a completed departmental application, three letters of recommendation, GRE scores, and all transcripts of past academic work are received and evaluated. Qualifications of students to continue in the program will be reviewed after the completion of 9 hours of required course work or the first full-time semester or summer session in residence.

The Doctoral Degree in graduate programs offered lead to either the Doctor of Education or the Doctor of Philosophy. The Educational Administration Program holds membership in the University Council for Educational Administration (UCEA). Programs of study for the doctoral degree must include a common core of required courses plus a major emphasis in one area of specialization. A minor in a second area of specialization is required for the EdD. The following areas of specialization are approved: administration, higher education, and curriculum and instruction. Each area of specialization requires a specific cluster of courses. The doctoral program may include courses from a department other than the Department of Educational Leadership and Counseling Psychology or a cluster of supportive courses.

Doctoral students will be considered for candidacy after they successfully complete the majority of their course work and pass a written comprehensive examination.

A thesis is required in each of the doctoral programs. There is a requirement of teaching or related experience for the Doctor of Education. A student pursuing a program leading to the Doctor of Philosophy degree is required to fulfill a research competency requirement, since the pursuit of research is emphasized in the program of study for the PhD.

The Master’s Degree in the Master of Education degree program requires at least 35 semester hours of approved graduate credit. Although a thesis is not required, candidates for the degree are required to write a six-hour comprehensive examination.

The Master of Arts in Education degree program (minimum of 30 semester hours) is recommended for students who plan to continue work toward the doctoral level. A thesis is required for the degree, and the program and thesis topic are designed to advance the career goals and professional aspirations of the candidate.

Admission to Graduate Study (Counseling and Educational Psychology)

Individuals applying for admission to do graduate study must make application to the Graduate School and submit the following materials to the Department of Educational Leadership and Counseling Psychology Associate Chair: letter of application describing professional objectives; completed departmental application form; vita; Graduate Record Examination scores; official college transcripts; and three letters of recommendation from individuals qualified to comment on the applicant's academic and professional abilities.

The Doctor of Philosophy in Education, with a specialization in counseling psychology, is designed for individuals who intend to become licensed counseling psychologists. The doctoral specialization in counseling psychology is designed for full-time study and is accredited by the American Psychological Association. For persons interested in the PhD specialization in counseling psychology, and master's degree programs in counseling, the department considers applications for admission only once a year. These applicants must submit their materials to the associate chair of the department by February 1 for admission the following summer or fall semester.

The Doctor of Philosophy in Education and the Doctor of Education, with a specialization in educational psychology, is designed for individuals who intend to enter the professional fields of: (a) college or university teaching in the areas of general educational psychology and/or educational measurement, evaluation and research design; (b) public school service in the role of a testing program director or coordinator of curriculum and program evaluation; and/or (c) research and/or administration in research units such as the Northwest Regional Lab or an office of institutional studies at a college of university. These applicants must submit their materials to the associate chair of the department by February 1 for admission the following summer or fall semester.

The Philosophy of Education and the Doctor of Education, with specialization in educational psychology, is designed for individuals who intend to enter the professional fields of: (a) college or university teaching in the areas of general educational psychology and/or educational measurement, evaluation and research design; (b) public school service in the role of a testing program director or coordinator of curriculum and program evaluation; and/or (c) research and/or administration in research units such as the Northwest Regional Lab or an office of institutional studies at a college or university. These applicants must submit their materials to the associate chair of the department by February 1 for admission the following summer or fall semester.

Applications for admission to a graduate program are reviewed by faculty on an individual basis, and notification of the faculty’s action is provided in writing by the chair of the department.

Certification (Educational Administration)

A certification program for the initial and continuing certificates for superintendents, principals, and program administrators is offered in the Department of Educational Leadership and Counseling Psychology. Candidates for administration certification must comply with the following requirements:

1. All candidates for advanced degree or certificate must be formally admitted to the university as specified in the current Graduate Study Bulletin. Admission will be considered after transcripts have been received from the institution which granted the baccalaureate degree as well as from institutions which have granted postgraduate credit.
2. All candidates not holding a master’s degree in an appropriate area of specialization must be admitted to the university and the master’s degree program in the respective department.
3. All candidates for certification must submit the following: application to the Graduate School; application for certification; three reference forms.
4. Admission to the certification program is granted only after the WSU Professional Education Advisory Board (PEAB) reviews the completed application process.

ESA Counselor Certification

The Department of Educational Leadership and Counseling Psychology at Washington State University is involved with southeastern Washington school districts in a Professional Education Advising Board in Counselor Education. The EdM specialization in school counseling constitutes a consortium-directed program approved by the State Board of Education. Completion of this program qualifies a person for initial certification as a school counselor in the state of Washington. Post-master’s degree course work is also available leading to continued counselor certification.

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, communications, or leadership studies. Additional information on the areas of specialization can be obtained from the department.

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 as a sport manager.

General Education Requirements must be completed by all students enrolled in the university. Sport management majors are required to complete Engl 101 and SpCom 102. Majors are encouraged to enroll in introductory courses in sociology and psychology. Transfer students are encouraged to complete the AA degree and to contact the department for additional information on courses that may apply to the major and/or the area of specialization.

Undergraduate Minors

The Department of Educational Leadership and Counseling Psychology offers undergraduate minors in Leadership Studies and Sport Management. Courses for minor may not be taken pass, fail. Students interested in declaring a minor in leadership studies or sport management should contact the Department of Educational Leadership and Counseling Psychology.

Leadership Studies. Students majoring in any academic area may also take a minor in Leadership Studies. The minor in Leadership Studies requires 18 semester hours, 13 of which must be from 300-400-level courses. Students must earn credits from courses in the core curriculum and the supporting interdisciplinary curriculum approved for the minor. Students must complete 9 and no more than 12 core curriculum credits from the following: 6 credits from: Ed Ad 389, 440; 3 credits from: either Ed Ad 497, 498, or 499.

In addition to the 9 credits from the core curriculum, students must earn the balance of the 18 credits from courses listed in the interdisciplinary supporting curriculum: choose 9 credits from: CAC 495, Mgt 401, Pol S 456, SpCom 434, W St 315. For more detailed information, contact www.edu/celp/leadership_studies.
**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, criminal justice, law, and social sciences.

Required courses include SpMgt 276, 284, 367, 390; 477 or 489, and 4 credits from SpMgt 365, 394, 496, 497.

**Record of Distinction**

The Department of Educational Leadership and Counseling Psychology sponsors and hosts a number of state, national and international programs including the A. A. Cleveland Conference, High School Equivalency Program and the Center for the Study of the Department Chair. Superintendent certification course work is also offered throughout the state at branch campuses in Spokane, Tri-Cities, Vancouver, and internationally in the Far East, as well as on the Pullman campus. Counseling certification is offered at the Tri-Cities branch campus.

The College of Education has excellent facilities for graduate study and research. Modern facilities in Cleveland Hall include a comprehensive George B. Brain Education Library, Mark W. Brands Computer Lab and research studies in the Attentional Processes Laboratory. Extensive use also is made of the university Computing Service Center and the university Instructional Support Services.

**Degree Program Requirements**

Honors students complete Honors Requirements in place of General Education Requirements.

**SPORT MANAGEMENT DEGREE PROGRAM**

(120 HOURS)

**Freshman Year**

**First Semester**

<table>
<thead>
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<th>Course</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Eng 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
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<tr>
<td>Tier I Science [Q]</td>
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**Second Semester**

<table>
<thead>
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<th>Course</th>
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<tr>
<td>Biological Science [B] (GER)</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
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<tr>
<td>Intercultural Studies [L,G,K] (GER)</td>
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<tr>
<td>Mathematics Proficiency [N] (GER)</td>
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<td>SpMgt 276</td>
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**Sophomore Year**

**First Semester**

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<td>Area of Specialization</td>
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<tr>
<td>Physical Science [P] (GER)</td>
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<td>SpCom 102 [C] (GER)</td>
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<td>SpMgt 284</td>
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<td>SpMgt 290 or additional GER [H,G,S,K]</td>
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**Second Semester**

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<tr>
<td>SpMgt 290 or additional GER [H,G,S,K]</td>
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<td>SpMgt 394</td>
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**Junior Year**

**First Semester**

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<td>H Ed 363</td>
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<td>SpMgt 365 or 367</td>
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<td>SpMgt 394</td>
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**Second Semester**

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<td>Eng 402 [W] (GER)</td>
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<tr>
<td>SpMgt 365 or 367</td>
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<td>SpMgt 394</td>
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**Senior Year**

**First Semester**

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<tr>
<td>SpMgt 488</td>
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<tr>
<td>SpMgt 489</td>
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<tr>
<td>Tier III Capstone (GER)</td>
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**Second Semester**

<table>
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<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>SpMgt 491</td>
<td>10-12</td>
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**Description of Courses**

**Counseling Psychology**

CoPsy 474 *Introduction to Counseling Techniques* 2
Prerequisite 9 hours Educ or Psych; junior standing. Practical directive and nondirective counseling techniques for school counselors and classroom teachers. Not open to PhD students in CoPsy.

478 *Career Services and Programs for Persons with Disabilities* 3 Career development concepts, services, and programs for persons with disabilities with emphasis on interagency collaboration with public schools. Credit not granted for both CoPsy 478 and 578.

490 *Instructional Practicum V* I (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 8 hours. S, F grading.

499 *Special Problems V* I–4 May be repeated for credit. S, F grading.

501 *Historical and Philosophical Foundations of Counseling Psychology* 3 Prerequisite 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 or 4 Philosophical assumptions, theory of personality, counseling process, techniques and relevant research in the major theories of counseling and personality.

512 *Theories, Research, and Techniques in Counseling Psychology II* 3 or 4 Prerequisite CoPsy 511. Advanced counseling theory; interpretations of theories and principles of counseling psychology.

513 *Career Development* 3 or 4 Theories, concepts, methods and findings in career development; vocational assessment and prediction, career counseling intervention outcomes.

515 *Ethics and Professional Problems in Counseling Psychology* 4 Professional problems; ethical, legal, and training issues, practices, and new issues.

518 *Theoretical Foundations of Group Counseling* 3 Prerequisite CoPsy 512 or com. History, philosophy and theoretical foundations; the group counselor, members, and issues in group counseling.

522 *Introduction to Family Counseling* 3 Counseling in the family context; intervention strategies, theoretical models, and professional ethics and issues.

523 *Topics in Counseling Psychology* V 1–4 May be repeated for credit; cumulative maximum 8 hours. Recent research, developments, issues, and/or applications in selected areas of counseling psychology.

525 *Counseling Diverse Populations* Prerequisite CoPsy 512. Research and theories regarding the influence of culture, gender, and lifestyle on counseling processes; application of appropriate assessment/treatment strategies.

527 *Individual Appraisal I* 3 or 4 Prerequisite EdPsych 508, 509. Theoretical background and practical skills needed to administer, score, and interpret individual intelligence and structured personality tests; integration of test data.

528 *Individual Appraisal II* 4 Prerequisite CoPsy 527. Theoretical and empirical bases, psychometric properties, administration, scoring, and interpretation of major projective techniques; emphasis on Rorschach and TAT.

529 *Counselor Supervision: Theory, Research, and Practice* 3 or 4 Prerequisite admission to Counseling Psychology PhD program. Survey of major theoretical approaches, techniques, and research in models of counselor supervision and training.

531 *Current Issues in School Counseling* 3 Prerequisite CoPsy 512, 518. Issues of immediate concern to school counselors: drug abuse, family violence, adolescent suicide, sexual orientation, crisis intervention, consultation and referral.

533 *Master’s Practicum in Agency Counseling* V 3 (2-3) to 6 (4-6) May be repeated for credit; cumulative maximum 6 hours. Prerequisite CoPsy 512, 513, 515; 527. Supervised experience in the application of counseling theory and techniques in an agency setting. S, F grading.

534 *Study Skills and Content Area Instruction* 2 or 3 Same as T & L 534.

535 *Master’s Practicum in School Counseling* V 3 (2-3) to 6 (4-6) May be repeated for credit; cumulative maximum 6 hours. Prerequisite CoPsy 512, 513, 518; 515 or com. 527 or com. 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 NBC requirements; growth and development, social and cultural foundations, the helping relationship, group dynamics, career, appraisal and research.

541 *Clinical and Experimental Hypnosis Seminar* 4 Prerequisite PhD student in counseling, educational, experimental, or clinical psychology. Clinical and experimental hypnosis, emphasizing applied research and clinical methods.

542 *Cross-cultural Research in Counseling and Assessment* 4 Cross-cultural research methods, concepts, and findings in counseling and assessment.
551 Doctoral Practicum In Counseling Psychology I 4 (2-6) Prereq CoPsy 512, 513, 515, by interview only. Supervised experiences in the application of counseling psychology theory and techniques. S, F grading.

552 Doctoral Practicum In Counseling Psychology II 4 (2-6) Prereq CoPsy 551, by interview only. Supervised experiences in the application of counseling psychology theory and techniques. S, F grading.

553 Doctoral Practicum in Counseling Psychology III V 2 (1-3) to 4 (2-6) May be repeated for credit; cumulative maximum 12 hours. Prereq CoPsy 552, by interview only. Supervised experiences in the application of counseling psychology theory and techniques. S, F grading.

557 Chicano/Latino Psychology 3 Graduate-level counterpart of CAC 457; additional requirements. Credit not granted for both CAC 457 and CoPsy 557.

561 Continuing Counseling ESA Certification V 3-6 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 completing level ESA Counselor Certification.

578 Career Services and Programs for Persons with Disabilities 3 Graduate-level counterpart of CoPs 478; additional requirements. Credit not granted for both CoPs 478 and 578.

590 Seminar in Research in Counseling Psychology 4 By interview only. Recent developments in counseling psychology research and design applied to PhD dissertation proposals. S, F grading.

597 Counseling Psychology Internship V 2-4 May be repeated for credit; cumulative maximum 8 hours. Supervised internship experience, individual and group counseling, evaluation, assessment, supervision, and teaching. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Educational Administration

Ed Ad

389 Undergraduate Leadership Development 3 Basic leadership through skills, styles and conflict management, critical thinking, problem solving, organizational behavior, and leadership issues.

440 Principles of Service and Leadership 3 Prereq Ed Ad 389. Individual and group opportunities to apply leadership skills, theory, and principles to a proposed service learning project.

497 Peer Leadership V 1-4 Development of leadership and interpersonal skills for specific peer leadership and paraprofessional positions. S, F grading.

498 Undergraduate Leadership Practicum V 1-4 Prereq Ed Ad 389 or c/f. Weekly seminar; development of and reporting on significant projects and with a leadership position held by the student. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Philosophy of Education 3 Development of American educational philosophy.

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.

511 Models of Teaching 2 Theoretical models and strategies of teaching in classrooms; relationships between specific models and curriculum priorities.

514 Basic Principles of Curriculum Design 2 or 3 Rec teaching experience. The application of theoretical concepts and approaches in the planning and design of curricula.

515 Curriculum Implementation 3 Rec teaching experience. Research and practice; innovation and change in curricular organization emphasizing implementation.

516 Instructional and Curricular Leadership 2 or 3 Rec teaching experience. Theory, research, and practice of providing instructional and curricular leadership in schools and other educational settings.

517 In-service Programs 3 For directors, supervisors, specialized personnel, principals, and superintendents with responsibility for in-service programs; practices and procedures in in-service education.

518 Educational Technology 3 Rec T & L 445 or 446. Research and theory of communication related to instructional resources and current educational technology; problems of planning and administering programs.

520 Seminar in Curriculum and Instruction 2 or 3 Rec teaching experience. Contemporary issues, analyses and developments of educational programs.

521 Topics in Education V 1-4 May be repeated for credit; cumulative maximum 6 hours. Recent research, developments, issues, and/or applications in selected areas of education.

522 Topics in Education 2(1-3) Rec secondary education with expertise in science, technology and/or math. Recent research, developments, issues, and/or applications in selected areas of education.

530 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours. Topical issues in education responding to shifting demands and skills needed by parents, teachers, school administrators and community leaders.

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533 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours. Topical issues in education responding to shifting demands and skills needed by parents, teachers, school administrators and community leaders.
577 The Law in Physical Education, Sport, and Athletics 3 Legal aspects of coaching, teaching, and administering sport, physical education, and athletic programs.

578 Higher Education and the Law 3 Legal aspects of higher education with special reference to administrators, faculty, and students in universities, colleges, and community colleges.

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. Co-operative course taught jointly by WSU and UI (EdAd 509).

582 Policy Formation in Education 3 Rec Ed Ad 580. Political and organizational policy formation processes in educational organizations.

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).

586 Management of Facility Planning 3 Principles and procedures in the development of educational specifications, conducting needs assessment, forecasting; selecting an architect.

587 Seminar in School Administration 3 or 6 May be repeated for credit; cumulative maximum 6 hours. Interdisciplinary seminars; related studies; discussions in several areas by specialists.

590 Internship 3 or 6 May be repeated for credit; cumulative maximum 12 hours. By interview only. Internship in professional positions. S, F grading.

594 Educational Internship V 2-9 May be repeated for credit; cumulative maximum 9 hours. Same as Kin 594.

596 Preparing Grant Proposals 3 Identification of funding sources; analysis, evaluation, and production of grant proposals.

599 Superintendent Institute 1 May be repeated for credit; cumulative maximum 4 hours. By interview only. Current concepts and practices in the superintendent; policy, planning, and implementation techniques. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

840 Educational Psychology EdPsy 322 Topics in Student Personnel Work 2 or 3 Educational psychology, theories of human behavior, and legal and ethical considerations related to student personnel work.

401 Classroom Assessment, Elementary 2 Prereq certified education major; T & L 301; 315/316. Principles and practice of high-quality classroom assessment in the elementary schools.

402 Classroom Assessment, Secondary 2 Prereq certified education major; T & L 303. Principles and practice of high-quality classroom assessment in secondary schools.

490 Instructional Practicum V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 6 hours. S, F grading.

499 Special Problems V 1–4 May be repeated for credit. S, F grading.

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 3 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 4 Descriptive statistics: central tendency, variability, correlations, and regressions; introduction of tests of significance; reporting and interpreting educational research data. Cooperative course taught jointly by WSU and UI (EdAd 507).

509 Educational Measurements: Test Development and Assessment 2 or 3 Rec EdPsy 508. Theory and use of standardized educational measurement instruments; intelligence, aptitude, and achievement tests; measurement of outcomes.

510 Assessment of Learning 3 Prereq graduate standing. Assessment of student learning, school and district evaluation; particularly appropriate for school administrators.

519 Practicum in College Instruction 1 (0–3) May be repeated for credit; cumulative maximum 4 hours. By interview only. Supervised experience in college teaching. S, F grading.

521 Topics in Educational Psychology V 1–4 May be repeated for credit; cumulative maximum 6 hours. Recent research, developments, issues, and/or applications in selected areas of educational psychology.


568 Research Methods II 3 Prereq EdPsy 505, 565. 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.

579 Educational Psychology Internship V 2–4 May be repeated for credit; cumulative maximum 6 hours. Supervised internship experience in educational psychology, measurement and evaluation. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Sport Management SpMgt 276 Introduction of Sport Management 3 Not open to first-semester freshmen. Nature of sport management; scope of sport related business; related literature.

284 Introductory Principles of Coaching 2 Overview of coaching responsibilities and basic understanding in the sport sciences utilized in coaching.

290 Sport Programs 3 (2-3) 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 SpMgt 276. Examination of the role of sport in contemporary American society as well as the relationship between sport and other social institutions.

394 Practicum in Sport Management V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. By interview only. Supervised practicum. S, F grading.

399 Professional Work Experience V 1 (0-3) to 6 (0-18) Prereq sophomore standing; by interview only. Paid or volunteer, off-campus work experience with a sport organization. S, F grading.


477 Sport Law 3 Legal aspects of coaching, teaching, and administering sport programs.

488 Current Trends in Sport Management 2 Prereq SpMgt 276; 468 or c/. Current trends and issues; professional development, internship and employment procedures.

489 Theory and Application 3 Prereq SpMgt 367; senior standing. Investigation and application of the components of the sport management profession.

490 Instructional Practicum V 1–4 May be repeated for credit; cumulative maximum 6 hours. S, F grading.
School of Electrical Engineering and Computer Science

Distinguished Professor in Power Engineering and Director, A. Bose; Professor and Associate Director, G. Howes; Associate Professor and Associate Director, P. Flynn; Distinguished Professor in Electromagnetics, R. Olsen; Boeing Centennial Chair Professor, C. Raghavendra; Distinguished Professor in Software Engineering, R. Rada; Professors, D. Benson, S. Elgar, T. Fischer, A. Fleischig, C. Hsu, M. Manwarin, L. Philipp, J. Ringo, A. Saberi, R. Tinker, K. Wang; Associate Professors, S. Broschat, T. Fiez, S. Hudson, D. Lynch, J. Meador, K. Mayaram, M. Mojarra, M. Mortz, Z. Obradovic, M. Osman, P. Pedow, K. Tomsovic; Assistant Professors, M. Alexander, R. Belzer, C. Buchanan, J. Hule, J. Hart, D. Hung, H. Kargupta, R. Lewis, C. Liu, J. Schneider, K. Sivalingam, V. Venkatabramanian; Adjunct Associate Professors, H. Collins, D. Fraelay, K. Singhrs; Adjunct Assistant Professors, N. Corrigan; Professors Emeriti, C. Mosher, D. Schrader, D. Seaman; Lecturers, G. Allen, C. Fallon, J. Hagemeister, M. Kibler, B. Kraimeche, P. Scudder, R. Warnick, C. Wells, J. Yediel.

The School of Electrical Engineering and Computer Science offers courses of study leading to the degrees of Bachelor of Science in Electrical Engineering (BSEE), or Computer Science (BSCS), and Master of Science in Electrical Engineering (MSEE) or Computer Science (MSCS), and Doctor of Philosophy. The program leading to the BSEE, which is accredited by the Engineering Accreditation Commission of the Accreditation Board of Engineering and Technology (EAC of ABET), while the program leading to the BSCS is accredited by the Computer Science Accreditation Commission of the Computing Sciences Accreditation Board (CSAC of CSAB), Final approval of the Bachelor of Science in Computer Engineering is expected soon.

Electrical Engineering

The curricula in electrical engineering are designed to give the student fundamental knowledge in the areas of general interest to all electrical engineers. The courses of study are therefore oriented toward the basic theory and concepts which prepare students for entry into any of the multitude of 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, measurements, digital signal processing and computers. Students are exposed to a variety of up-to-date computing environments to aid in their studies.

The curricula are designed so that the equivalent of the first three to four semesters may be transferred from the 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 select an area of specialty. Special programs may be designed for students planning to continue on to advanced study in law, medicine, or business administration, and for those who wish to pursue undergraduate study in more than one field.

Computer Science

The computer continues to have a dramatic effect on many aspects of contemporary society, and the demand for people who are trained to use computers and software systems will increase for the foreseeable future. Computer science is a discipline that provides a scientific foundation for a variety of practical skills, including computer system design, software system design, information processing, programming, and the use of specialized computer applications. An important specialty for this school and for computer scientists in general is software engineering, which deals with the issues of designing, constructing, testing, debugging, documenting, and maintaining large, complex, and/or mission-critical software systems used in medical, scientific, and business applications.

The curriculum in computer science prepares students for a variety of careers that involve the extensive use of computers. All graduates will have a solid technical background in mathematics and the pure and engineering sciences. Courses in the discipline include structured programming, systems programming, data structures, software engineering, computer architecture, operating systems concepts, programming language concepts, and theoretical computer science. An option area course sequence allows students to specialize in areas such as software engineering, computer graphics, scientific computing, or artificial intelligence.

Certification

Students may apply for certification into any of the three programs of study after completion of 30 semester hours to include Bio S 102 or Chem 105; Cpt S 150, 203, or 251; Math 171, 172, Phys 201, 202. Applications for certification are accepted prior to November 15 and to March 15 for certification effective the following spring and fall, respectively. Eligible students will be ranked in accordance with several criteria including WSU and transfer g.p.a., and g.p.a. in mathematics, science and in electrical engineering or computer science courses. Final acceptance will be made after current semester grades are available, and students will be notified of the decision as soon as possible.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

No courses listed in the chosen schedule of studies may be taken on a pass, fail basis. The student’s selection of General Education courses must reflect an area of coherence.

ELECTRICAL ENGINEERING DEGREE PROGRAM (128 HOURS) ✔FYDA

Freshman Year

First Semester Hours
Chem 105 [P] (GER) 4
E E 110 or 120 3
Engl 101 [W] (GER) 3
GenEd 110 or 111 [A] (GER) 3
Math 171 [N] (GER) 4

Second Semester Hours
Cpt S 251 2
GenEd 110 or 111 [A] (GER) 3
Math 172 4
Math 220 2
Phys 201 [P] (GER) 4

Sophomore Year

First Semester Hours
Biological Science [B] (GER) 3
C E 213 4
E E 214 3
Math 273 2
Phys 202 [P] (GER) 4

Second Semester
C E 214 2
E E 261 3
E E 262 3
E E 314 1
Economics [S] (GER) 3
Math 315 3

Junior Year

First Semester Hours
Arts & Humanities [H,G] (GER) 3
E E 311 3
E E 321 3
E E 331 3
E E 352 3

Second Semester
E E 341 3
E E 351 3
E E 361 3
E E 362 [M] 2
Engl 402 [W] (GER) 3
MSE 302 3

Senior Year

First Semester Hours
E E 489 3
Intercultural Studies [L,G,K] (GER) 3
M E 301 3
Stat 443 3
Technical Electives 5

Second Semester
E E 480 1
Technical Electives 13
Tier III Capstone [H,G,S,K] (GER) 3

1.Cpt S 150 can be substituted for Cpt S 251.
2.E E 362 and Engl 402 are taken concurrently.
3.Electives must be selected with an advisor’s approval and must include sufficient design credit to satisfy the department’s accreditation requirements. Technical electives must all be 300-400 level courses and include at least one of the following: Computer Science, Electromagnetics, or Artificial Intelligence.

Technical electives must include at least 15 hours of
Senior technical electives must be chosen from electrical engineering courses. The remaining 3 hours may be in math, science, computer science, or engineering.

**ELECTRICAL ENGINEERING WITH COMPUTER ENGINEERING OPTION DEGREE PROGRAM (133 HOURS)**

**Freshman Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Chem 105 [P] (GER)</td>
<td>4</td>
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<tr>
<td>Cpt S 150 Prog Design</td>
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</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 or 111 [A] (GER)</td>
<td>3</td>
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<tr>
<td>Math 171 [N] (GER)</td>
<td>4</td>
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**Second Semester**

<table>
<thead>
<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 250</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Math 172</td>
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<tr>
<td>Math 216</td>
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<tr>
<td>Phys 201 [P] (GER)</td>
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**Sophomore Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>E E 214</td>
<td>3</td>
</tr>
<tr>
<td>Math 220</td>
<td>2</td>
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<tr>
<td>Math 273</td>
<td>2</td>
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<tr>
<td>Phys 202 [P] (GER)</td>
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**Second Semester**

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<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>E E 261</td>
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<td>E E 262</td>
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<td>E E 314</td>
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<tr>
<td>Economics [S] (GER)</td>
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<tr>
<td>MSE 302</td>
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**Junior Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts and Humanities [H,G] (GER)</td>
<td>3</td>
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<tr>
<td>E E 311</td>
<td>3</td>
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<tr>
<td>E E 321</td>
<td>3</td>
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<tr>
<td>E E 331</td>
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<tr>
<td>E E 352</td>
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**Second Semester**

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<thead>
<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 360 [M]</td>
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<tr>
<td>E E 341</td>
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<tr>
<td>E E 351</td>
</tr>
<tr>
<td>E E 414</td>
</tr>
<tr>
<td>Engl 402 [W] (GER)</td>
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</table>

**Senior Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>C E 213</td>
<td>4</td>
</tr>
<tr>
<td>Cpt S 422 [M]</td>
<td>3</td>
</tr>
<tr>
<td>E E 424</td>
<td>4</td>
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<tr>
<td>E E 434</td>
<td>3</td>
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<tr>
<td>Tier III Capstone [H,G,S,K] (GER)</td>
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**Second Semester**

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<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>C E 214</td>
</tr>
<tr>
<td>E E 444 [M]</td>
</tr>
<tr>
<td>E E 480</td>
</tr>
<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
</tr>
<tr>
<td>Stat 443</td>
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<tr>
<td>Approved Technical Electives</td>
</tr>
</tbody>
</table>

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1 Senior technical electives must be chosen from 400-level Cpt S or E E courses. The electives must be chosen with an advisor’s approval.

**COMPUTER SCIENCE DEGREE PROGRAM (126 HOURS)**

**Freshman Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 150</td>
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</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
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<tr>
<td>Math 171 [N] (GER)</td>
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**Second Semester**

<table>
<thead>
<tr>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Cpt S 250</td>
</tr>
<tr>
<td>Econ 101 [S] or 102 [S] (GER)</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Math 172</td>
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<tr>
<td>Math 220</td>
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**Sophomore Year**

<table>
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<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 330</td>
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<tr>
<td>E E 214</td>
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<tr>
<td>Math 216</td>
<td>3</td>
</tr>
<tr>
<td>Math 273</td>
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</tr>
<tr>
<td>Phys 201 [P] (GER)</td>
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**Second Semester**

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<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 350</td>
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<tr>
<td>Cpt S 380</td>
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<tr>
<td>Math 315</td>
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<td>Phys 202 [P] (GER)</td>
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**Junior Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 360 [M]</td>
<td>4</td>
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<tr>
<td>Cpt S Option Course</td>
<td>3</td>
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<tr>
<td>E E 261</td>
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<tr>
<td>E E 262</td>
<td>1</td>
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<tr>
<td>Engl 402 [W] or 403 [W] (GER)</td>
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**Second Semester**

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<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Cpt S 317</td>
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<tr>
<td>Cpt S 355</td>
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<tr>
<td>Cpt S Option Course</td>
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<tr>
<td>Intercultural [I,G,K] (GER)</td>
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<td>Stat 360</td>
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**Senior Year**

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<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
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<tr>
<td>Cpt S 422 [M]</td>
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<tr>
<td>Cpt S 450</td>
<td>3</td>
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<tr>
<td>Cpt S 452</td>
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<tr>
<td>Cpt S 495</td>
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<tr>
<td>Cpt S Option Course</td>
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**Second Semester**

<table>
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<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>Cpt S 401</td>
</tr>
<tr>
<td>Cpt S 460</td>
</tr>
<tr>
<td>Cpt S Option Courses</td>
</tr>
<tr>
<td>Tier III Capstone [H,G,S,K] (GER)</td>
</tr>
</tbody>
</table>

**Computer Science Option Areas**

The computer science degree program includes an elective group of 15 credits (minimum) called an option area. Courses in the option area can reflect a technical emphasis (e.g., computer graphics or mathematics), a business emphasis (management information systems), or may be chosen for technical breadth in consultation with an academic advisor.

Students are required to propose a preliminary set of option area courses at the time of certification. This proposed option sequence must be approved by the Computer Science Undergraduate Coordinator. Changes to the set of option courses may be made until the final semester, but must be approved by the Computer Science Undergraduate Coordinator.

Option areas chosen from the list below will be approved.

- Artificial Intelligence: Anth 450 or Psych 490; Cpt S 440, 441, 451; Phil 335 or Psych 384; Psych 105.
- Communications: Cpt S 425, 445, or 455; E E 321, 341, 451, 464.
- Computer Engineering: Cpt S 445, 455, or 461 E E 321, 324, 341, 424.
- Management Information Systems: Cpt S 241, 370, 423; Cpt S 425 or MIS 271; Mgt 301, 350.
- Robotics and Control: Cpt S 445 or 461; E E 321, 441, 442, 489.
- Scientific Computation: Cpt S 423 or 443; 442; Math 340 or 440; 364, 464.

**Minors**

**Computer Science:** The minor in computer science consists of 17-22 credits which must include Cpt S 150, 250, 350, and two 400-level Cpt S courses excluding Cpt S 405. All prerequisites for minor courses must be met. The minor program must be approved by the Computer Science Undergraduate Coordinator.

- Electrical Engineering: 18 semester hours of courses in electrical engineering are necessary to earn a minor, 9 of which must be upper division.
- Three courses (8 semester hours) in addition to E E 214, 261, 262, and 314 are required.
- Electrical Engineering with Computer Engineering option: 18 semester hours of courses in electrical engineering are necessary to earn a minor, 9 of which must be upper division.
- Two courses (five hours) in addition to E E 214, 261, 262, 314 are required.

**Transfer Students**

Students planning to transfer from other institutions should carefully note the sequence of courses listed above. Transfers from community colleges should consult the booklet “Transfer Programs for Washington Community Colleges” or should write directly to the School of Electrical Engineering and Computer Science for specific information.
Description of courses

Electrical Engineering

E E

110 Introduction to Electrical Engineering 2 Introduction to basic electrical engineering concepts; the electrical engineering profession.

120 Innovation in Design 2 Same as M E 120.

214 Design of Logic Circuits 3 (2-3) Prereq Math 172 or c//. Functional approach to design of electronic logic circuits; exposure to elementary circuit concepts and design with integrated circuits.

261 Electrical Circuits I 3 Prereq Math 315 or c//. Phys 202; or c// in E E 262. Application of fundamental concepts of electrical science in linear circuit analysis; mathematical models of electric components and circuits.

262 Electrical Circuits Laboratory I 0-3 Prereq E E 261 or c//. Electrical instruments; laboratory applications of electrical laws; transient and steady-state responses of electrical circuits.

304 Introduction to Electrical Circuits 2 Prereq Math 172, Physics 202. Basic DC and AC circuits.

305 Introduction to Microprocessors 2 Prereq Cpt S 150, 203, or 251. Digital components, circuits, and number representation; microprocessor organization, instruction sets, and system design.

311 Electronics 3 Prereq E E 214, 261 with grade of C or better; major or minor in E E. Fundamental device characteristics including diodes, MOSFETs and bipolar transistors; small- and large-signal characteristics and design of linear circuits.

312 Electronic Devices and Circuits Laboratory I 1 (0-3) Prereq c// in E E 311. Experiments in electrical circuits, measurements and electronics; principles of measurements and measuring instruments.

314 Microprocessor Systems 3 (2-3) Prereq Cpt S 150 or 251, E E 214. Microprocessor system architecture, instruction sets, and interfacing; assembly language programming.

321 Electrical Circuits II 3 Prereq E E 261 with grade of C or better; major or minor in E E. Graphs, loop and cut-set analysis, state space analysis, Laplace transforms, network functions, frequency response, two-ports, energy and passivity.

322 Electrical Engineering Laboratory I 1 (0-3) Prereq c// in E E 321. Experiments in electrical circuits, measurements, and electronics, principles of measurements and measuring instruments.

324 (414) Fundamentals of Digital Systems 4 (3-3) Prereq E E 261, 314. Design and analysis of synchronous sequential machines; module and bit-slice devices; alternative architectures; system-level design; asynchronous sequential devices.

331 Electromagnetic Fields and Waves 3 Prereq Math 315; Phys 202; major or minor in E E. Fundamentals of electric fields, magnetic fields, and electromagnetic waves.

341 Communication Systems 3 Prereq E E 321. Analog communication, amplitude and frequency modulation, Fourier transform, filtering, receiver performance; sampling theorem, DFT.

351 Distributed Parameter Systems 3 Prereq E E 331. Transmission lines, plane waves, waveguides, antennas, fiber optics.

352 E E Laboratory I 1 (1-6) Prereq Cpt S 150, 203, or 251; E E 311, 321, or c//; major in E E. Experiments in electrical circuits, measurements and electronics; principles of measurements and measuring instruments.

361 Electrical Power Systems 3 Prereq E E 321, 331. Power system hardware; transformers, and electromechanical machinery; introduction to power system operation.

362 [M] Power System Laboratory I 2 (0-6) Prereq c// in E E 361, c// in E E 341, c// in Engl 402 or 403. Experiments in simulation, modeling, transformers, rotating machines, and transmission lines.

380 Preparation for Professional Practice 1 Prereq junior standing in Cpt S or E E. Resume writing, investigation of job and internship opportunities; curriculum integration; professional ethics; continuity of design experience. S, F grading.

416 [M] Electrical Engineering Design 3 (1-6) Prereq senior in E E; Engl 402 or 403. Electrical engineering design of several specific open-ended projects including design specifications, codes, costs, EIS; written and oral presentations; team work experience.

417 Numerical Solutions to EM Problems 3 Prereq E E 351. Numerical solutions to EM problems including the moment method; finite element method; finite difference method, numerical integration, and matrix operations. Cooperative course taught by WSU, open to UI students (E E 483). Credit not granted for both E E 417 and 517.

420 Capstone Engineering Design 3 (1-6) Same as M E 420.

424 Digital System Architecture 4 (3-3) Prereq E E 314, 324. Modern developments in digital system design, parallel structures, pipelining, input/output, high speed circuits, laboratory experience in digital system design; emphasis on CPU architecture.

426 Introduction to Electromagnetic Compatibility 3 Prereq E E 341, 351. Electromagnetic compatibility requirements and principles, nonideal component behavior, conducted and radiated emissions and susceptibility, crosstalk, shielding, system design. Credit not granted for both E E 426 and 526.

431 UHF and Microwave Circuits 3 or 4 (3-3) Prereq E E 351. Lines and waveguides in passive and active circuits; microstrip filter and amplifier design.

432 RF Engineering for Telecommunications 4 (3-3) Prereq E E 341, 351. System and propagation issues for wireless telecommunications; cellular, PCS, microwave, and satellite system analysis, design, measurement, and testing.

434 VLSI Systems 1 (2-3) Prereq E E 314; 324 or c//; 466 or c//. System, circuits, and physical level design of very large scale integrated circuits using CAD software; project specification, documentation, and reporting.

441 Digital Control Systems 3 Prereq E E 341, 489. Linear difference equation, Z-transform, discretization, A/D and D/A conversion, sampled data system analysis, frequency domain design, state space design, quantization effects.

442 Robotics 3 Prereq E E 489 or M E 481 or c//. Robots, kinematics, inverse kinematics, Jacobians, dynamics, sensors, actuators, position control, force control, hybrid control, trajectory generation.

444 [M] VLSI Systems II 1 (0-3) Prereq E E 443. Laboratory experience with digital integrated circuit test design; functional and parametric testing of fabricated student projects.


455 Introduction to Computer Networks 3 Same as Cpt S 455.

464 Digital Signal Processing 3 Prereq E E 341. Discrete and fast Fourier transforms; Z-transform; sampling; discrete convolution; digital filter design; effects of quantization.


466 Pulse and Digital Circuits 3 (2-3) Prereq E E 311, 314. Linear theory and practice used in design of digital computers and other high-speed digital systems.

472 Power Systems Laboratory II 2 (0-6) May be repeated for credit; cumulative maximum 4 hours. Prereq E E 362; c// in E E 486, 491, or 493. Experiments and design projects related to E E 486, 491 and/or 493.

475 Electrical Measurements and Transducers 3 (1-6) Prereq E E 352. Principles of electrical measurements and techniques with individual transducer design, development and test problems; formal report.

476 Analog Integrated Circuits 3 Prereq E E 311; 351 or c//; 489 or c//; or c// in 477 for capstone design credit. Analysis and design of analog integrated circuits in CMOS and BiCMOS technologies; current mirrors, gain stages, operational amplifiers, frequency response, and compensation. Credit not granted for both E E 476 and 576.

477 [M] Analog Integrated Circuits Laboratory 2 Prereq c// in E E 476. Laboratory applications of E E 476 including the computer-aided design of analog integrated circuits; emphasis on design documentation and reporting.

478 Microelectronic Fabrication 3 Prereq E E 311. Semiconductors, photolithography, dry and wet oxidation, diffusion, thin film deposition, clean rooms, fabrication and testing of diodes and MOS capacitors. Credit not granted for both E E 478 and 578.

480 Electrical Engineering Design Precepts 1 Prereq senior in E E. Electrical engineering design and its extensive aspects as well as formative social and ethical relationships. S, F grading.

483 Topics in Electrical and Computer Engineering V 1-3 May be repeated for credit; cumulative maximum 3 hours. Current topics in electrical engineering and computer engineering.

485 Design Project Management 2 Prereq senior standing. Project scheduling/planning, technical writing, oral presentation skills, working in teams, TQC, TQM, market-driven organizations.

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 525).
489 Introduction to Control Systems 3 Prereq C E 214, E E 321. 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. Static and dynamic behavior of power systems, powerflow, and economic considerations.

493 Protection of Power Systems I 3 Prereq E E 361. Analysis and equipment fundamentals of power system protection; symmetrical components, fault calculations; fuses; and relays including burden calculations.

494 Protective Relay Labs 2 (0-6) Prereq E E 493 or C/. Experiments and measurements of protective relay equipment under test, simulated fault and fault conditions.

495 Internship in Electrical Industry II V 2-4 May be repeated for credit; cumulative maximum 8 hours. Prereq E E 341 or 361. For juniors and seniors in E. Students work full time on engineering assignments in approved industries. S, F grading.

496 Introduction to Semiconductor Device Theory I 3 Prereq E E 311 or MSE 302. Equilibrium statistics of electrons and holes: carrier dynamics; p-n junctions, metal-semiconductor junctions, BJTs, MOSFETs, LEDs.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Linear System Theory 3 Prereq E E 489. Dynamic systems from the state variable approach; observability, controllability, stability and sensitivity of differential and nondifferential systems. Cooperative course taught jointly by WSU and UI (EE 572).

502 Linear Multivariable Control 3 Prereq E E 501. Optimal linear feedback control, optimal stochastic observers, LQG/LTR design methodology, modern Wiener-Hopf design, robust controllers. Cooperative course taught jointly by WSU and UI (EE 574).

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 (E E 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).


511 Protection of Power Systems II 3 Prereq E E 499. WSU and UI (EE 572). Protection of electrical equipment as related to electric power systems with emphasis on digital algorithms. Cooperative course taught jointly by WSU and UI (EE 526).

512 Active Network Synthesis 3 Prereq E E 341. Devices and classical network synthesis, two-port network theory, filters, active filters.

516 Remote Sensing Theory 3 Prereq E E 518. Radiative transfer theory; rough surface scattering; scattering in random media; scattering by random discrete scatterers; the T-matrix method; inverse scattering. Cooperative course taught by WSU, open to UI students (E E 536).

517 Numerical Solutions to EM Problems 3 Prereq graduate standing. Graduate-level counterpart of E E 417; additional requirements. Credit not granted for both E E 417 and 517.

518 Advanced Electromagnetic Theory I 3 Prereq E E 351. Electromagnetic waves, electromagnetic theorems and concepts, solutions to the wave equation in rectangular, cylindrical and spherical coordinates. Cooperative course taught by WSU, open to UI students (EE 530).

519 Advanced Electromagnetic Theory II 3 Prereq E E 518. Exact solutions to canonical electromagnetic diffraction problems, high and low frequency limits, foundations of numerical solutions to electromagnetic scattering problems. Cooperative course taught by WSU, open to UI students (EE 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.

521 Analysis of Power Systems 3 Prereq E E 491. Concepts and practices of modern power engineering, including steady-state and dynamic analysis, economics and control design.

522 High Voltage Engineering 3 Prereq E E 331. High voltage-high power phenomena; design and measurements associated with electrical transmission, current interruption, insulation, transformation, lighting, and corona.

524 Advanced Digital System Architecture 3 Prereq E E 424. Parallel and distributed processors; multiprocessors; interconnection topologies; language directed architecture; special purpose processors.

526 Introduction to Electromagnetic Compatibility 3 Prereq graduate standing. Graduate-level counterpart of E E 426; additional requirements. Credit not granted for both E E 426 and 526.

527 Antenna Theory and Design 3 Prereq E E 351. Antenna fundamentals, analytical techniques, characteristics and design procedures for selected types of wire, broadband, and aperture antennas. Cooperative course taught jointly by WSU and UI (E E 532).

528 Advanced Topics in Electromagnetics 3 May be repeated for credit; cumulative maximum 6 hours. Prereq E E 351. Advanced topics of current interest in wave propagation (electromagnetics, acoustics, or optics).

530 Multirate Signal Processing 3 Prereq E E 341, 464. Fundamentals of sampling rate conversion, exact reconstruction filter banks, and multidimensional multirate systems.

531 Energy Management and Planning 3 Available energy resources; energy issues, economic analysis of energy alternatives; energy future.

534 High Performance Computing 3 Prereq E E 324. Development, current state and future of high-performance computing; application of existing commercial supercomputers to engineering problems. Cooperative course taught by UI (EE 504), open to WSU students.

535 EM Simulation 3 Prereq by interview only. Computer simulation of electromagnetics using the finite-difference time-domain (FDTD) method; theory of finite-difference simulation techniques for modeling EM propagation in lossy and dispersive media; boundary conditions for time-domain simulation. Cooperative course taught by UI (EE 538), open to WSU students.

541 Digital Control Systems II 3 Prereq E E 441. State space approach, SISO, optimal control, State estimators, stochastic systems, State estimation in the presence of noise.

543 Signal Theory 3 Prereq E E 341. Theory of signals; signal spaces; basis sets; signal representations; projection theorem; Fourier transform; optimum signal design.

544 Neural Computation 3 Same as Cpt S 544.

545 Data Compression 3 Prereq E E 507, 543. Source coding with a fidelity criterion; quantization theory; predictive, transform and subband coding; noiseless source codes.

548 Information Theory and Channel Coding 3 Prereq E E 451, 507. Information theory: entropy, mutual information, source and channel coding, channel capacity, Gaussian channels; channel coding: block and convolutional codes.

551 Data Communication Systems 3 Prereq E E 341, 507. Digital communications; multi-amplitude/phase signal constellations; probability of error performance; cutoff rate; Viterbi algorithm; trellis coded modulation.

554 Asynchronous Digital Systems 3 Prereq E E 342. Analysis and design of high speed asynchronous state machines, timing defect analysis, modular elements, arbiters, programmable sequencers, system level design. Cooperative course taught jointly by WSU and UI (EE 540).

555 Computer Communication Networks 3 Prereq Stat 443. Packet switching networks; multi-access and local-area networks; delay models in data networks; routing and flow control.

562 Fault Tolerant Computer Systems 3 Same as Cpt S 562.

564 Advanced Signal Processing 3 Prereq Stat 443. Signal processing and communication theory aspects of frequency domain analysis of continuous and discrete random signals.

570 Optoelectronics 3 Prereq E E 496 or Phys 463. Methods of modulating, generating, and detecting light; display techniques; display devices; fiber optics.

576 Analog Integrated Circuits 3 Prereq graduate standing. Graduate-level counterpart of E E 476; additional requirements. Credit not granted for both E E 476 and 576.

578 Microelectronic Fabrication 3 Graduate-level counterpart of E E 478; additional requirements. Credit not granted for both E E 478 and 578.

581 Advanced Topics in Power Systems 2 or 3 May be repeated for credit; cumulative maximum 6 hours. Prereq E E 521. Power system operations including AGC, economic dispatch and security; power system dynamics; intelligent systems applications. Cooperative course taught jointly by WSU and UI (EES 504).

582 Advanced Topics V 1-3 May be repeated for credit.

584 Parallel Processing: Systems and Applications 3 Same as Cpt S 584.
586 VLSI Systems Design 3 Prereq E E 444. VLSI models, layout algorithms, design methodologies, simulation and layout tools, algorithm design for VLSI implementation.

595 Directed Study in Electrical Engineering V 1-3 May be repeated for credit. Current topics in electrical engineering.

596 Advanced Analog Integrated Circuits 3 Prereq E E 476, 477. MOS and BiCMOS technologies; MOS and BiCMOS operational amplifiers; A/D, D/A converters; switched-capacitor filters; continuous-time filters. Cooperative course taught by WSU, open to UI students (EE 515)

597 Semiconductor Device Modeling 3 Electron transport in semiconductors; scattering processes, Monte-Carlo technique, numerical techniques for solving Poisson and continuity equations for device modeling.

598 High Speed Semiconductor Devices 3 Prereq E E 496. Transit-time effects, negative resistance devices; ballistic transport in high electric fields; GUNN effect devices; resonant tunneling, IMPATTs, HEMTs, and HBTs.

600 Special Projects or Independent Study Variable credit. F, S grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Computer Skills and Literacy Courses

Cpt S

100 General Computer Literacy 2 Computer literacy for a general audience; hardware, operating systems, applications, social issues, and emerging themes.

101 Personal Computer Tools V I (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 3 hours. Prereq Cpt S 100 or computer science placement examination. Personal computer tools for a general audience; laboratory exposure; PC applications.

105 Computer Literacy and Applications 4 Computer competency for a general audience; PC components, operating systems (Windows), and applications (MS Office Pro., email, Web Browsers).

110 Computer Science Overview 3 Prereq Math 107 or c//. Central concepts of computer science: algorithms, computability, complexity, artificial intelligence in the context of current computational devices and software.

153 BASIC Programming 2 Comprehensive programming practice using BASIC.

203 FORTRAN Programming 2 Prereq Math 171 or c//. Comprehensive programming practice using FORTRAN.

207 Introduction to the Internet 3 Prereq Cpt S 105 or 150. Skills and strategies for utilization of the resources of the Internet.

241 COBOL Programming 2 Prereq Math 107 or c//. Comprehensive programming practice using COBOL.

251 C Programming Language 2 Prereq Math 171 or c//. Comprehensive programming practice using C.


253 Java Programming Language 3 Prereq Cpt S 150, 153, 203, or 251. Comprehensive programming practice using Java.

283 Topics in Computer Skills and Literacy V 1-3 Current topics in computer skill development and computer literacy.

302 Unix System Administration 3 (2-3) Prereq Cpt S 150. Functions and responsibilities of Unix system administrators; disks, networking, accounting and policy.

306 Programming for Engineers I 3 Prereq Math 220, 273, 315. Problem-solving methods, software development principles structured programming with engineering applications.

307 Programming for Engineers II 3 Prereq Cpt S 306. Continuation of Cpt S 306; advanced programming topics and data structures with engineering applications.

401 [S] Computers and Society 3 Prereq Cpt S 105, 150, 153, 203, 241, or 251; Phil 260 or Soc 101; completion of one Tier I and three Tier II courses in appropriate area of coherence. Ethical and societal issues related to computers and computer networks; computers as enabling technology; computer crime, software theft, privacy, viruses, worms.

405 The Use of Computer Systems 3 Prereq junior standing. For nonmajors. Computers, computer systems, and software packages for advanced students in other disciplines; hands-on use. No previous computer experience required.

Computer Science Courses

Cpt S

120 Innovation in Design 2 Same as M E 120.

150 Program Design and Development 4 (3-3) Prereq Math 107. Formulation of problems and top-down design of programs in a modern structured language for their solution on a digital computer.

250 Data Structures 4 (3-3) Prereq Cpt S 150. Advanced programming techniques: object-oriented programming, data structures and program design principles.

317 Automata and Formal Languages 3 Prereq Math 216. Finite automata, regular sets, pushdown automata, context-free languages, Turing machines and the halting problem.

330 Numerical Computing 3 Prereq Cpt S 150, 203, or 251; c// in Math 315. Power and limitation of numerical solutions; design, analysis and implementation of numerical algorithms; visualization and rendering.

350 Software Design 3 Prereq Cpt S 250, Math 216. Software design techniques; data-flow oriented design, object-oriented and data-oriented design; testing and maintenance of software.

355 Programming Language Design 3 Prereq Cpt S 350; Math 216. Design concepts of high-level programming languages; survey of existing languages, experience using some languages.

360 [M] Systems Programming 4 (3-3) Prereq Cpt S 250; E E 314. Implementation of systems programs, concepts of computer operating systems; laboratory experience in using operating system facilities.

370 Systems Analysis and Design 3 Prereq Cpt S 150 or 241. Analysis and design of computer-based systems typically found in a business environment; related programming projects.

380 Preparation for Professional Practice 1 Same as E E 380.

422 [M] Software Engineering Principles 3 Prereq Cpt S 350. Introduction to large-scale software development; requirement analysis, estimation, design, verification techniques.

423 Software Engineering Laboratory 3 (1-6) Prereq Cpt S 422. Laboratory/group design project for large-scale software development, requirements analysis, estimation, design, verification techniques.

425 Network Security 3 Prereq Cpt S 360. Practical topics in network security; policy and mechanism; intrusion, detection, prevention, response, cryptography. Cooperative course taught by UI (CS 425), open to WSU students.

426 Mobile Computing 3 Prereq Cpt S 355. Handheld portable computing software development; object-oriented, dynamic programming; persistent object stores, wireless communication.

427 Computer Security 3 Prereq Cpt S 360. Computer security concepts and mechanisms; encryption technology, formal models, policy and ethical implications. Credit not granted for both Cpt S 427 and 527.

430 Numerical Analysis 3 Same as Math 448. Credit not granted for both Cpt S 430 and 530.

434 Neural Network Design and Application 3 Prereq Stat 360, computer programming skills. 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.

440 Introduction to Artificial Intelligence 3 Prereq Cpt S 355. Basic issues of knowledge representation and automated problem solving; introduction to the theory and application of expert systems technology.

442 Computer Graphics 3 Prereq Cpt S 350; Math 220. Raster operations; transformations and viewing; geometric modeling; visibility and shading; color. Cooperative course taught by WSU, open to UI students (CS 404). Credit not granted for both Cpt S 442 and 542.

443 Computer-Human Interaction 3 Prereq Cpt S 350. Topics in computer-human interaction; screen based paradigms and Fitt’s law; audio and haptic interfaces, virtual reality.

445 Digital Image Processing 3 Prereq Cpt S 250 or 251; Math 220, 273. Digitization, coding enhancement, restoration, reconstruction, segmentation, and description of digital images. Cooperative course taught by WSU, open to UI students (CS 404).

446 Animation Programming 3 (1-4) Prereq Cpt S or E E major; Cpt S 250. Introduction to computer animation production, animation programming techniques, simulation, and dynamic visualization.

450 Design and Analysis of Algorithms 3 Prereq Cpt S 317, 350. Analysis of data structures and algorithms; computational complexity and design of efficient data-handling procedures.

451 Introduction to Database Systems 3 Prereq Cpt S 350; Math 216. Introduction to database concepts, data models, database languages, database design, implementation issues.
522 Software Reuse 3 Prereq Cpt S 422. Basic principles of software reuse, compositional and generative reuse, with specific topics selected from current literature, reverse engineering.

523 Software Engineering Measurement 3 Prereq Cpt S 521. Measurement methodology is the foundation of the emerging discipline of software engineering: software products are constructed by people engaged in software development process in a development environment; focus on learning to measure the attributes of these four measurement domains: examples of software measurement and the applications of these measurements; using these techniques as the basis for the design of software engineering experiments; application of the scientific method in evaluation of programming methods and models; extension of the measurement concepts into the area of statistical modeling. Cooperative course taught by UI (CS 538), open to WSU students.

527 Computer Security 3 Graduate-level counterpart of Cpt S 427; additional requirements. Credit not granted for both Cpt S 427 and 527.

530 Numerical Analysis 3 Prereq 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 Same as Math 544. Prereq Cpt S 450, 460. 2-D and 3-D image acquisition, imaging geometry, segmentation, feature extraction, object representation and recognition, texture, active vision.

532 Advanced Numerical Analysis 3 Same as Math 545.

533 Numerical Analysis of Elliptic PDEs 3 Same as Math 546.

534 Neural Network Design and Application 3 Prereq graduate standing. Graduate-level counterpart of Cpt S 434; additional requirements. Credit not granted for both Cpt S 434 and 534.

541 Artificial Intelligence 3 Prereq Cpt S 440. Intelligent computer programs; simulation of cognitive processes.

542 Computer Graphics 3 Prereq graduate standing. Graduate-level counterpart of Cpt S 442; additional requirements. Credit not granted for both Cpt S 442 and 542.

543 Multimedia Systems 3 Prereq Cpt S 455, 460. Survey of recent advances in multimedia systems: applications, authoring tools, information retrieval, network and operating system support, and data management.

544 Neural Computation 3 Prereq Math 315, Stat 443. Parallel processing inspired by natural neural networks; neural computer architecture, supervised and unsupervised learning, generalization, visualization, and application; neurophysiology basis.

545 Computer Vision 3 Prereq Cpt S 350. 2-D and 3-D image acquisition, imaging geometry, segmentation, feature extraction, object representation and recognition, texture, active vision.

546 Computer Animation II 3 May be repeated for credit; cumulative maximum 9 hours. Same as Cpt S 546.

547 Statistical Pattern Recognition 3 Prereq Stat 444. Supervised and unsupervised classification of multivariate data feature selection, extraction and display; application to computational and natural sciences.

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 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 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, or E E 424 and elementary probability theory. Fault tolerance aspects involved in design and evaluation of systems; methods of detection and recovery; modeling, correcting codes and reconfiguration.

565 Distributed Systems 3 Prereq Cpt S 460. Basic architectural models, network-transparent message passing, remote procedure call, distributed file systems, multi-site concurrency control, replication, error recovery.

570 Virtual Universities 3 Prereq Cpt S 470. How the university and all its constituents benefit from hypermedia, groupware, and computer networks.

580 Advanced Topics in Computer Science 3 May be repeated for credit.

584 Parallel Processing: Systems and Applications 3 Prereq E E 524. Parallel processing, partitioning, allocation and mapping, array processors, hypercubes, parallel routing algorithms, parallel memory access, examples of parallel machines.

595 Virtual Computer Science Seminar 1 May be repeated for credit; cumulative maximum 3 hours.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Program in Engineering Management

Program Director, J. A. Ringo.

Engineering management is a graduate program designed to help technical professionals become effective managers. The program is administered by the College of Engineering and Architecture. Management training is integrated with upgraded tech-
Program in Engineering Management

Academic programs encompass the entire business spectrum, engineering management focuses on the management of those activities that have a high technological content. This interdisciplinary master’s degree is offered to the Boeing Company in the Puget Sound area, at WSU Spokane, WSU Tri-Cities, and WSU Vancouver. Classes in the program are offered at times convenient for the working engineer. Engineering management students are engineers who bring a significant amount of experience with them into the academic arena from a variety of engineering and management backgrounds.

Visit the Engineering Management Program at www.cea.wsu.edu/engrmgt.

Program Requirements

The master’s program with a nonthesis option consists of 32 credit hours including a minimum of 30 credit hours of approved graded course work and a minimum of 2 credit hours of Master’s Special Problems. The program of studies leads to a Master of Engineering Management degree. An overview of the engineering management curriculum can be summarized as follows:

<table>
<thead>
<tr>
<th>Core Courses</th>
<th>Hours</th>
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<tr>
<td>Acctg 534</td>
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<td>E 463</td>
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<td>E M 702</td>
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<td>Mgt 501</td>
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<td>Stat 430</td>
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Electives: 12 semester hours of course work may be taken as electives within the following framework:

- Engineering/Engineering Management electives (technical electives in discipline): 6-12 hours.
- Management electives (courses in marketing, production, finance, law, computers or communications): 0-6 hours.

Admission Requirements

Students who apply to the Master of Engineering Management degree program will have earned a Bachelor of Science in Engineering from an accredited program with a minimum g.p.a. of 3.0. Working engineers with undergraduate degrees in other fields, particularly mathematics, physics, or other physical sciences, may be accepted for this program; requirements for additional undergraduate work in engineering (nonengineering majors) are evaluated on an individual basis. Prospective students must score above 500 on the Graduate Management Admission Test (GMAT), provide three letters of recommendation, a resume showing significant engineering experience, and a brief personal statement outlining the appropriateness of the program in light of career goals and work history.

<table>
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<tr>
<th>Spring Semester</th>
<th>Sequence</th>
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<tr>
<td>E M 540</td>
<td>2th</td>
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<td>E M 505</td>
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<td>E M 702</td>
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<td>Stat 430</td>
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</table>

Electives: summers and alternate years.

For information on the certificate program, please contact the Pullman office, (509) 335-0125.

Description of Courses

Engineering Management

E M 460 Manufacturing and Operations Design and Strategy

Prereq junior standing. Concepts and techniques for design and managing manufacturing and service, operations intended to develop a world class organization.

E M 480 Quality Control and Reliability Design

Prereq junior standing. Quality analysis including process modeling, product quality, statistical process control, process capability studies and reliability prediction models.

E M 490 Design for Product and Service Realization/Manufacturability

Prereq junior standing. Tools and techniques used by engineers for the improvement of the design of products and services.

501 Management of Organizations

Same as Mgt 501.

505 Financial Management for Engineers

Time value of money, capital budgeting, accounting principles, cost, valuation, risk, cost accounting and sensitivity analyses: concepts for engineering decision-making.

517 Simulation Modeling of Engineering Systems

3 Rec Stat 430; experience with computer programming. Analyzing and developing representative models for complex systems such as project or operations management using a variety of simulation styles.

526 Constraints Management

3 Factors that block improvement in any system: effective breakthroughs; continual systems improvements for manufacturing, administration, projects.

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 Decision Analysis for Engineering

3 Structured discipline for describing, analyzing, and finalizing decisions involving uncertainty.

560 Manufacturing and Operation Design and Strategy

3 World-class concepts, tools and techniques for designing and operating manufacturing and service operations; layout, capacity planning, inventory management scheduling.

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.

570 Quality Management

3 Overview of the total field of quality, including strategic quality management programs, quality assurance, quality control, and product design.

575 Performance Management in Technical Organizations

3 Rec Mgt 501 or c/l. 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 Design

3 Quality improvement analysis for process and product quality; statistical process control; capability studies; acceptance sampling concepts; reliability models for predictions and testing.

585 Quality Engineering Using Experimental Design

3 Design of quality into products and processes using design of experiments including robust/parameter design and tolerance design techniques.

590 Design for Manufacturability (DFM)

3 Tools and techniques which can be used for the improvement of the design of products, processes, and services.

591 Strategic Management of Technology and Innovations in Engineering

3 Rec final year. Management of innovation and technological innovation, integrating technological strategy, new product development, and corporate entrepreneurship and innovation.

595 Advanced Topics in Engineering Management I

3 V 1-3 May be repeated for credit; cumulative maximum in E M 595 and 596, 9 hours. A wide range of current high-interest engineering management topics.

596 Advanced Topics in Engineering Management II

3 May be repeated for credit; cumulative maximum in E M 595 and 596 is 9 hours. A wide range of current high-interest engineering management topics.

600 Special Projects or Independent Study

Var-May be repeated for credit; cumula-tivationary credit.

702 Master’s Special Problems, Directed Study, and/or Examination

Variable credit.

Department of English


The major in English provides students with a broad critical and cultural understanding of literature and literary studies, while at the same time emphasizing the writing and analytical skills that are vital to success in the university, in professional and graduate
school, and in the workplace. The program of study is flexible and allows English majors to focus on particular areas of intellectual interest, to pursue electives, minors, and second majors in other departments, and to shape their academic careers in line with professional and personal interests. The curriculum is designed for (1) students who desire a broad education emphasizing language and literature, (2) students who wish to teach or to prepare for graduate studies in English, and (3) students who intend to use the background and skills learned in the major as a foundation for careers in writing, editing, law, or business. The curriculum provides majors the opportunity to complete their studies with a small discussion seminar or senior project in their area of emphasis.

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 in English. In cooperation with the Department of History, the department participates in the interdepartmental program in American Studies leading to the degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy in American Studies. Students interested in the Bachelor of Arts in this interdisciplinary field should consult the requirements listed under Program in American Studies. Students interested in interdisciplinary degrees in areas such as linguistics and classical studies should consult the requirements within the Program in General Studies.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

As part of their graduation requirements in the College of Liberal Arts, all majors are required to take either Hum 101 or 103.

Five programs are offered for the English major, all leading to the degree of Bachelor of Arts in English. Option I is for students who desire a general liberal arts education emphasizing literature, critical thinking and writing; it is often selected by students with double majors, and those coming to the major late in their university careers. Option II is designed for students preparing for graduate study in English and related fields. Option III is for students who need specific training in the teaching of language and literature; it is a program for English-education majors coordinated with the Department of Teaching and Learning. Option IV is for English majors planning to enter law school; it emphasizes analytical and verbal skills and breadth requirements in areas identified as requisite to success in the profession by law schools and the Law School Admission Council. Option V is for English majors planning for a career in business; it emphasizes analytical and communication skills, a broad liberal arts background, and a core of business, economics, and computer science courses required for most business careers.

All options in the major share the requirements of the general degree below. In summary these consist of: A) one 3-credit GER course in Humanities, either Hum 101: Ancient World or Hum 103: Mythology; a two-course foundation consisting of one introductory course in literary studies (Engl 108, 199, 209, or 210) and one writing-intensive course in literary analysis and critical approaches (Engl 302); and ten 300-400-level courses distributed as follows—B) Four courses in English literature, at least three of which must be in literature prior to 1900 and include one from Engl 305 or 306 (Shakespeare), one from Engl 383, 384, 385, 386 (pre-1800 period courses), and one from Engl 387, 388, 389 (post-1800 period courses); C) Two courses in American Literature, at least one of which must be in literature prior to 1916, including one from Engl 380, 381, 382 (period courses) and one from Engl 311, 314, 321, 322, 341, 345, or 346 (American Writers of Color); and D) a four-course upper-division concentration, which must include an appropriate senior seminar, senior project (the latter possible with an acceptable proposal and advisor available to direct), or internship, the whole making up a coherent area of study. Concentrations must be approved by advisor, may include one nondepartmental or 100-200-level course if appropriate, and must fall into one of the following categories: English Literature, American Literature, Literature and Criticism, World Literature/Humanities, Writers of Color/Ethnic Studies [if elected, substitute relevant 300-level American literature period course in C], Gender Identity and Literature, Literature and Cultural Studies, Language and Linguistics, or Writing and Rhetoric (Professional Writing, Creative Writing, or Rhetoric and Theory Emphasis).

Some 300-400-level courses offered only on alternate semesters; please check time schedule when planning these suggested sequences.

FIRST SEMESTER REQUIREMENTS

The first semester requirements are common to all English degree programs:

**Freshman Year**

**First Semester**  
Hum 101 [H] or 103 [H] (GER) 3  
Engl 101 [W] (GER) 3  
GenEd 110 [A] (GER) 3  
Math Proficiency [N] (GER) 3  
Science Elective (GER)1 1  
Tier I Science [Q] (GER) 3  
Total: 9

**Second Semester**  
Hum 102 [H] or 104 [H] (GER) 3  
Engl 302 [M] [W] (GER) 3  
Social Sciences or Arts & Humanities [H,G] or Intercultural [I,G,K] (GER) 3  
Physics Elective (GER)2 1  
Total: 9

**Honors Students**  
Students may substitute one 4-credit Tier I Science for both the 3-credit Tier I Science and 1-credit Science Elective.

I. English Major: General Degree Program (120 Hours)  

** Secondly Semester Requirements** (120 Hours)  

**Freshman Year**

**Second Semester**  
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3  
Biological Sciences [B] (GER) 4  
Engl 108 [H], 199 [H], 209 [H], or 210 [H] (GER) 3  
GenEd 111 [A] (GER) 3  
Social Sciences [S,K] (GER) 3  
Total: 12

**Sophomore Year**

**First Semester**  
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 6  
Engl 302 [M] [W] (GER) 3  
Engl 305 [H] or 306 [H] (GER) 3  
Physical Sciences [P] (GER) 4  
Total: 16

**Second Semester**  
Engl 383, 384, 385, or 386 3  
Engl 387, 388, or 389 3  
Intercultural [I,G,K] (GER) 3  
SpCom 102 [C] (GER) 3  
Electives 6  
Total: 24

**Junior Year**

**First Semester**  
American Writers of Color1 3  
Concentration Elective 3  
Engl 380, 381, or 3822 3  
Electives 3  
Complete Writing Portfolio 3  
Total: 15

**Second Semester**  
Concentration Elective 3  
Electives 9  
Total: 12

**Senior Year**

**First Semester**  
American Writers of Color1 3  
Concentration Elective 3  
Electives 12  
Total: 18

**Second Semester**  
Incidental Capstone (GER) 3  
Electives 6  
Total: 9

**Sophomore Year**

**First Semester**  
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3  
Biological Sciences [B] (GER) 4  
Engl 108 [H], 199 [H], 209 [H], or 210 [H] (GER) 3  
GenEd 111 [A] (GER) 3  
Social Sciences [S,K] (GER) 3  
Total: 15

**Second Semester**  
Engl 383, 384, 385, or 386 3  
Engl 387, 388, or 389 3  
Intercultural [I,G,K] (GER) 3  
Electives 3  
Total: 12

**Junior Year**

**First Semester**  
American Writers of Color1 3  
Concentration Elective 3  
Engl 380, 381, or 3822 3  
Electives 3  
Total: 12

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1 One from Engl 306, 311, 314, 321, 322, 341, or 345.
2 If American Writers-of-Color course focuses on post-1916 works, then Engl 380 or 381 must be chosen.
3 300-400-level course; program must include at least three 300-400-level courses in English literature prior to 1900.
4 Approved capstone for concentration (Engl 405, 492, 493, 494, 495, 498, or senior project).
### III. ENGLISH TEACHING DEGREE PROGRAM (120 HOURS)

#### Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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</tr>
<tr>
<td>Engl 202 [M] [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Engl 305 [H] or 306 [H] (GER)</td>
<td>3</td>
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<tr>
<td>Physical Sciences [P] (GER)</td>
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#### Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>English 383, 384, 385, or 386</td>
<td>3</td>
</tr>
<tr>
<td>English 387, 388, or 389</td>
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<tr>
<td>Grammar/Linguistics Elective</td>
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<tr>
<td>Intercultural [L,G,K] (GER)</td>
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<td>SpCom 102 [W] (GER)</td>
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#### Junior Year

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<td>Concentration Elective</td>
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<td>Engl 202 [M] [W] (GER)</td>
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<td>Engl 305 [H] or 306 [H] (GER)</td>
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<td>Engl 202 [M] [W] (GER)</td>
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<tr>
<td>Engl 305 [H] or 306 [H] (GER)</td>
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<td>Physical Sciences [P] (GER)</td>
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#### IV. ENGLISH/PRE-LAW DEGREE PROGRAM (120 HOURS)

#### Freshman Year

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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>Biological Sciences [B] (GER)</td>
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<td>Engl 108 [H], 199 [H], 209 [H], or 210 [H] (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>Hist Elective [H] (GER)</td>
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<tr>
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<td>Concentration Elective</td>
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<tr>
<td>Engl 300</td>
<td>3</td>
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<tr>
<td>Engl 323</td>
<td>3</td>
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<tr>
<td>Engl 380, 381, or 382</td>
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<tr>
<td>English Literature Elective</td>
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#### V. ENGLISH/BUSINESS DEGREE PROGRAM (121 HOURS)

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<td>Engl 108 [H], 199 [H], 209 [H], or 210 [H] (GER)</td>
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#### FYDA

Requirements in this option include those of the general degree plus 6 credit hours each in philosophy and political science and 3 in Macroeconomics (among these, Phil 201 Elementary Logic and Phil 260 Ethics are required, with a range of course selections specified for the other areas). In addition to satisfying these requirements, students in this option are urged to elect a GER Area of Coherence in either American Cultures or Structure of Society to round out the broad-based liberal-arts education recommended by law schools.
Description of Courses

English

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) May be repeated for credit; cumulative maximum 5 hours. Prereq writing placement exam. Student-centered group tutorial focusing on writing improvement usually connected to the Engl 101 or 105 course.

103 Basic Skills in English ESL 3 Prereq placement exam. English grammar, composition, and pronunciation for non-native speakers of English.

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.


106 Conversation ESL 1 (0-2) May be repeated for credit; cumulative maximum 2 hours. Oral communication designed specifically to fit the needs of international students.

108 [H] Reading Literature 3 Reading for pleasure, appreciation, and enlightenment: short stories, novels, plays, poetry. Credit not granted for both Engl 108 and 199.

198 [W] English Composition Honors 3 Credit not granted for more than one: Engl 101, 105, and 198.

199 [H] English Composition and Literature Honors 3 Credit not granted for both Engl 108 and 199.

200 [W] Expository Writing 1 or 2 Prereq sophomore standing. For transfer students who need to make up writing credits.

201 [W] Writing and Research V 1 (0-3) Prereq Engl 101 or 105. Designed to develop students’ researching skills for writing across the disciplines.

209 [H] Readings in Literature in English Through the 18th Century 3 Selected major works, genres, and conventions of the literary tradition in English from Medieval to early Romantic.

210 [H] Readings in Literature in English Since the 18th Century 3 Selected major works, genres, and conventions of British and American literary tradition from Romantic to modern.

216 [H] Main Currents in American Culture 3 Introduction to the interdisciplinary study of American cultures and the field of American studies.

222 [G] World Literature in English 3 Literature in English from such regions as Africa, Asia, and the Caribbean.

255 English Grammar 3 Introduction to the terms, concepts, and analytical methods of traditional English grammar.

256 Introduction to Syntax and Semantics 3 Technical introduction to the structure of words and sentences in natural languages and to the study of linguistic meaning.

261 [H] Literary Masterpieces 3 Prereq Engl 101. Works of lasting appeal in world literature from 1800 to the present.

300 Computers in English 1 (0-3) May be repeated for credit; cumulative maximum 6 hours. Use of computers in the writing process and in the analysis of literature. S, F grading.

301 [W] Writing and Rhetorical Conventions 3 Prereq Engl 101 or 105. Designed to provide students with advanced practice in and study of style, argument, and other discourse conventions.


305 [H] Shakespeare 3 Shakespearean drama to 1600.

306 [H] Shakespeare 3 Shakespearean drama after 1600.

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 Literatures 3 Same as CAC 313.

314 [M] Topics in Asian/Pacific American Literature 3 May be repeated for credit; cumulative maximum 6 hours. Same as CAC 314.

315 [H] Introduction to African American Literature 3 Same as CAC 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.


332 [M] Topics in Poetry 3 May be repeated for credit; cumulative maximum 6 hours. Forms, history, development of poetry; the epic, the lyric, verse satire, dramatic monologue, modernist verse.

333 [M] Topics in Fiction 3 May be repeated for credit; cumulative maximum 6 hours. Forms, history, development of narrative fiction: the tale, short story, Continental and experimental novel.

334 [M] Topics in Drama 3 May be repeated for credit; cumulative maximum 6 hours. Forms, history, development of drama: comedy, tragedy, Medieval religious drama, theatre of the absurd.

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 [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 May be repeated for credit; cumulative maximum 6 hours. Analytical study of film as major literary genre.

1 Credit does not apply toward graduation.

2 Open only to students in the Honors Program.
341 [G] [M] Native American Literature 3 Same as CAC 373.
345 [G] [M] Introduction to Chicano/Chicana Literature 3 Same as CAC 353.
346 Vanguard Poetics in Chicano/Latino Writers 3 Same as CAC 354.
351 Creative Writing: Prose 3 Prereq Engl 101. Writing the short story: practice and theory.
352 Creative Writing: Poetry 3 Prereq Engl 101. Workshop approach to poetry writing.
354 History of the English Language 3 Prereq one year For L. Language related to the origin, history, and literature of its speakers.
355 Multimedia Authoring: Exploring New Rhetorics 3 Prereq Engl 301 or F A 331. Writing for new computer-based media; multimedia authoring project; examination of new rhetorics of information technology.
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.
380 American Literature to 1855 3 Prereq Engl 209, 210, or substitutions approved by advisor. American writing from Settlement and Revolution through the times of Irving, Poe, Emerson, Hawthorne, Fuller, Thoreau, and Melville.
381 American Literature 1855-1916 3 Prereq Engl 209, 210, or substitutions approved by advisor. American writing in an era of expansion, social and literary ferment: Whitman, Dickinson, Frost, the literature of realism and naturalism.
382 Modern American Literature 3 Prereq Engl 209, 210, or substitutions approved by advisor. Major literary movements and alternate voices in American poetry, fiction, and drama from WW I to the present.
383 Chaucer and Medieval Literature 3 Prereq Engl 209, 210, or substitutions approved by advisor. Chaucer's Canterbury Tales in the context of Medieval culture and literary tradition.
385 Milton and English Literature of the 17th Century 3 Prereq Engl 209, 210, or substitutions approved by advisor. Non-dramatic literature from the Metaphysicals and Jonson through Milton, against background of scientific revolution, religious controversy, and civil war.
386 English Literature of the Restoration and 18th Century 3 Prereq Engl 209, 210, or substitutions approved by advisor. Neo-classical literature from 1660 to the Romantic era: Dryden, Swift, Pope, Johnson, Gray, Goldsmith, Burns, and others.
387 English Romantic Literature 3 Prereq Engl 209, 210, or substitutions approved by advisor. Major works by Blake, Wordsworth, Coleridge, Byron, Shelley, Keats, and others during Romantic literary revolt, especially 1798-1832.
388 Victorian Literature 3 Prereq Engl 209, 210, or substitutions approved by advisor. Major works by Tennyson, Dickens, Browning, Swinburne, Wilde, and others in a dynamic age of change in Britain, 1832-1901.
389 Modern British Literature 3 Prereq Engl 209, 210, or substitutions approved by advisor. Fiction, drama, poetry in age of conflict, artistic experimentation: Joyce, Woolf, Lawrence, Murdoch, Shaw, Pinter, Yeats, Eliot, Auden, and others.
391 Topics—Study Abroad 3 Topics—Study Abroad 3 May be repeated for credit; cumulative maximum 6 hours.
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.
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 [H] Women Writers in the American West 3 Prereq completion of one Tier I and three Tier II courses in appropriate area of coherence. Diversity of writings by women in the trans-Missouri West from the 1890s to the present.
410 [I] Cultural Criticism and Theory 3 Same as CAC 405.
415 [H] Traditions of Comedy and Tragedy 3 Prereq completion of one Tier I and three Tier II courses in appropriate area of coherence. Study of tragedy and comedy in the Age of Shakespeare.
419 [H] The Twentieth Century Novel 3 Prereq completion of one Tier I and three Tier II courses in appropriate area of coherence. The novel in English in the literary and cultural context of the modern age.
443 Problems in English Linguistics: Syntax and Phonology 3 May be repeated for credit; cumulative maximum 6 hours. Technical introductions to generative analysis of sentences and to sound systems of human languages. Credit not granted for both Engl 443 and 453.
451 Advanced Creative Writing: Prose 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Engl 351 or consent of instructor. Writing the novel.
452 Advanced Creative Writing: Poetry 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Engl 352 or consent of instructor. Workshop approach to poetry writing for the advanced student.
458 Topics in Sociolinguistics and Psycho-linguistics 3 May be repeated for credit; cumulative maximum 6 hours. Relationship of language to social and psychological structures.
470 Culture of the American West 3 May be repeated for credit; cumulative maximum 6 hours. The West in American literature or topics in culture of the American West.
471 [H] Cultural Politics Since World War II 3 Same as CAC 471.
472 [T] Ecological Issues and American Nature Writing 3 Same as Am St 472.
Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

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

Students planning to become pest control consultants or pest management specialists should include the following courses: AgEc 201, CropS 305, IPM 201, 452, 462; PI P 429; SoilS 201; Stat 310 or 412 and crops courses in CropS and Hort.

ENTOMOLOGY DEGREE PROGRAM (120 HOURS) • FYDA

Freshman Year
First Semester Hours
Bio S 103 [B] (GER) 4
Chem 101 [P] or 105 [P] (GER) 4
Eng 101 [W], 201 [W] or 301 [W] (GER) 3
GenEd 110 [A] (GER) 3
Second Semester Hours
Bio S 104 [B] (GER) 4
Chem 102 [P] or 106 [P] (GER) 3
Communication Proficiency [C,W] (GER) 3
GenEd 111 [A] (GER) 3

Sophomore Year
First Semester Hours
AgEc 201 [S] or Econ 102 [S] (GER) 3
Arts & Humanities [H,GJ] (GER) 3
Entom/IPM Elective 2 or 3
Intercultural [LG,K] (GER) 3
Physical Sciences [P] (GER) 3
Second Semester Hours
Bio S 372 4
Chem 240 or 340 3 or 4
GenCB 301 4
Social Sciences [SK] (GER) 3
Junior Year
First Semester Hours
Bot 320, Zool 352, or 353 3 or 4
Entom 343, 344 4

Department of Entomology

Professor and Chair, J. J. Brown; Professor, A. A. Berryman; Associate Professors, G. E. Long, G. L. Piper; W. S. Sheppard, W. J. Turner; Assistant Professors, C. A. Sheppard, R. S. Zack.

Insects and other related arthropods are the dominant consumers in all terrestrial ecosystems. There are far more kinds of insects than all other creatures combined. They compete at all levels with humans in the production, processing and use of food and fiber resources. They are a major health threat to most of the world’s people. In-depth knowledge in basic areas of insect identification, morphology, physiology, behavior and ecology are prerequisites to developing and applying control measures against our arthropod competitors. Ecological and legal restrictions on pesticide usage require people knowledgeable in the safe use of pesticides and in the effect of such use on the environment.

The entomology curriculum provides the opportunity to study the basic and applied aspects of entomology. 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.

The curriculum prepares students for graduate study in entomology or for employment in institutional or private pest control oriented areas. 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: apiculture behavior, integrated biological control and sustainable pest management, ecology, forest entomology, insect-plant relationships, medical/vertebrate entomology, population genetics, physiology, systematics, and environmental toxicology. Departmental faculty at outlying research centers also serve as advisors for graduate student research and sometimes teach over WHETS. Extensive insect collections, insectary, quarantine, computer and video facilities support teaching, extension, and research. The department is committed to developing an integrated biological control approach to pest management. This commitment is reflected in the broad involvement of the faculty and evolving curricula in biocriticism.

The department offers courses of study leading to the degrees of Bachelor of Science in Entomology, Master of Science in Entomology, and Doctor of Philosophy (Entomology). Additional information can be obtained on the World Wide Web at: http://coopext.cahe.wsu.edu/~entom/.
**Department of Entomology**

Math 140 [N] or 205 [N] (GER) 4
Electives 6
Complete Writing Portfolio

**Second Semester**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Subjects</th>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER) 3</td>
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<tr>
<td>Bot 120, 320, or 332 2 or 3</td>
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<tr>
<td>Entom 439 or 440 [M] 4</td>
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<td>Electives 6</td>
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**Senior Year**

**First Semester**

<table>
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<td>Electives 7 or 10</td>
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**Second Semester**

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<tr>
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<tr>
<td>Electives 12</td>
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**Entomology Minor**

A minimum of 16 hours is required for the minor and must include Entom 343, 439, or 440 and 9 hours from: Entom 348, 443, 448, 449, 450, 462; IPM 201, 452, 462.

**Preparation for Graduate Study**

As preparation for work toward an advanced degree in entomology, a student should complete an undergraduate major in some field of biological science, chemistry, forestry or agriculture. Background work should include courses in general biology, organic chemistry, genetics, ecology, entomology, plant science, physical science, and zoology.

**INTEGRATED PEST MANAGEMENT**

The integrated pest management major is a multidisciplinary course of study sponsored by 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. Students in this major have the option of obtaining a general background in pest management or specializing in one or both of the areas of entomology and weed science within pest management. All students also participate in a summer internship program whereby they have the opportunity to gain work experience through supervised off-campus employment with pest management individuals or organizations. All students are required to complete a minimum of 120 semester hours of course work, including the internship, to earn the Bachelor of Science degree in Agriculture with a minor in IPM. At least 40 of the total hours required must be in 300-400-level courses.

**FIRST AND SECOND YEAR REQUIREMENTS**

The requirements for the first two years are common to both integrated pest management degree programs.

**Freshman Year**

**First Semester**

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<tr>
<th>Hours</th>
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<tr>
<td>Bio S 103 [B] (GER) 4</td>
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<td>Chem 101 [P] or 105 [P] (GER) 4</td>
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<td>Engl 101 [W] (GER) 3</td>
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<td>GenEd 110 [A] (GER) 3</td>
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<td>IPM 201 2</td>
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**Second Semester**

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<td>Chem 102 [P] or 106 [P] (GER) 4</td>
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<td>GenEd 111 [A] (GER) 3</td>
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<td>Math 140 [N] or Stat 212 [N] (GER) 4</td>
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<td>Psych 105 [S] (GER) 3</td>
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**Sophomore Year**

**First Semester**

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<tr>
<td>Ag Ec 201 [S] (GER) 3</td>
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<td>CropS 201 or Hort 201 4</td>
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<tr>
<td>ES/RP 101 [B] (GER) 4</td>
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<tr>
<td>ES/RP 174 3</td>
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<td>H D 205 3</td>
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**Second Semester**

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<tr>
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<td>Chem 240 4</td>
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<td>ES/RP 150 [Q] or Zool 150 [Q] (GER) 3</td>
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<td>Intercultural [I,G,K] (GER) 3</td>
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<td>SoilS 201 [B] (GER) 3</td>
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**ENTOMOLOGY OPTION DEGREE PROGRAM**

**FYDA**

**Junior Year**

**First Semester**

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<td>Bot 320 4</td>
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<tr>
<td>CropS 305 3</td>
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<td>PI P 429 3</td>
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**Second Semester**

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<tr>
<td>Bio S 372 4</td>
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<td>Bot 332 4</td>
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<tr>
<td>Entom 343, 344 4</td>
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<td>IPM 452 2</td>
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<td>Elective/Option Course [M] 3</td>
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Year 3, Summer Session: IPM 399 3

**Senior Year**

**First Semester**

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<td>Tier III Capstone (GER) 3</td>
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**Second Semester**

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**WEED SCIENCE OPTION DEGREE PROGRAM**

**FYDA**

**Junior Year**

**First Semester**

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<td>Bot 320 4</td>
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<td>CropS 302 3</td>
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<td>CropS 305 3</td>
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<td>PI P 429 3</td>
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**Second Semester**

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<td>Bot 332 4</td>
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<tr>
<td>Entom 340, or 343, 344 3 or 4</td>
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<td>IPM 452 2</td>
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<td>Elective/Option Course [M] 3</td>
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Year 3, Summer Session: IPM 399 3

**Second Semester**

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<th>Hours</th>
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<tr>
<td>CropS 303 3</td>
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<tr>
<td>CropS 445 3</td>
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<td>Elective/Option Courses 6</td>
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**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.


344 General Entomology Laboratory 2 (0-6) Prereq Bio S 103, 104; Entom 343 or c/l. Identification and taxonomy of insects and related arthropods; insect collection and field work required.

348 Forest Entomology 2 (1-3) Same as NATRS 348.

361 Honey Bee Biology 1 Biology of the honey bee, including behavior, genetics, evolution, pollination, sociality, and beekeeping practices.

362 Fundamentals of Beekeeping 1 (0-2) Prereq Entom 361 or c/l. Applied beekeeping practices including safety, equipment, colony installation, manipulation for pollination and honey production, honey bee diseases and pests.

380 Urban Entomology 3 (2-3) Management and biology of urban pests in home, landscape, and recreational environments.

401 [T] Biological Thought and Invertebrates 3 Prereq Bio S 104, completion of one Tier I and three Tier II courses in appropriate area of coherence; Rec Zool 150. Development of biological ideas and knowledge from antiquity to present with emphasis on major advances achieved through invertebrate models.

426 Population Analysis 1 Same as NATRS 426. Credit not granted for both Entom 426 and 526.

429 Population Theory 1 Same as NATRS 429. Credit not granted for both Entom 429 and 529.

439 Taxonomic Entomology 2 or 4 (2-6) Prereq Entom 340 or 343. Identification of insect orders and families. Insect collection required. Credit not granted for both Entom 439 and 539.

440 Taxonomy of Immature Insects 2 or 4 (2-6) Prereq Entom 343. Identification of eggs, larvae, nymphs, and pupal stages of insects. Insect collection required. Credit not granted for both Entom 440 and 540.

443 Insect Ecology 3 (2-3) Prereq Bio S 104, Entom 343, Math 140. Interrelationships of insects with the physical and biotic environment; population dynamics and community relations. Cooperative course taught by WSU, open to UI students (Ent 443). Credit not granted for Entom 443 and 477, 478, or 479.

446 Insect-Plant Interactions: Plant Resistance to Arthropods 1 Prereq Entom 343. Principles and methods of screening and developing crop cultivars resistant to arthropods. Cooperative course taught by UI (Ent 446), open to WSU students.

447 Introduction to Biological Control 3 (2-3) Principles and methods of controlling insect pests and weeds by biological means. Credit not granted for both Entom 447 and 547. Cooperative course taught by UI (Ent 447), open to WSU students.

448 Medical Entomology 2 Prereq Bio S 103, 104. Aspects of medical entomology as they apply to humans. Cooperative course taught by WSU, open to UI students (Ent 448).

449 Veterinary Entomology 1 Prereq Bio S 103, 104. Aspects of medical entomology as they apply to warm-blooded, non-human animals.

450 Principles of Applied Entomology 4 (3-3) Prereq Entom 340 or 343. Utilization of biological, physical, cultural and chemical factors in managing insect pest populations.

460 Insects for Teaching 2 Prereq general biology course. The use of insects in teaching scientific principles in the life sciences.

462 Systems in Integrated Crop Management 3 (2-3) Prereq one semester calculus. Evaluation and use of computer models to make decisions for managing pests, diseases, and crop productivity. Credit not granted for both Entom 462 and 562.

472 Aquatic Entomology 1 Identification and biology of insects associated with aquatic and subaquatic environments. Cooperative course taught by UI (Ent 472), open to WSU students.

474 Aquatic Entomology Lab 2 (0-6) Prereq enrollment in Entom 472. Field trips required. Cooperative course taught by UI (Ent 474), open to WSU students.


478 Physiological Ecology of Insects 1 Prereq Entom 343, Math 140. Effects of and reactions to physical factors in the environment by arthropods. Credit not granted for Entom 443 and 477, 478, or 479.

479 Natural History of Insects 1 Prereq Entom 343, Math 140. Life history strategies and management of population of terrestrial arthropods. Credit not granted for Entom 443 and 477, 478, or 479.

490 Special Topics in Entomology V 1-4 May be repeated for credit; cumulative maximum 10 hours. Credit not granted for both Entom 490 and 590.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

511 Principles of Systematic Biology 3 (2-3) Same as Zool 511.

526 Population Analysis 1 Same as NATRS 526. Credit not granted for both Entom 426 and 526.

529 Population Theory 1 Same as NATRS 529. Credit not granted for both Entom 429 and 529.

539 Taxonomic Entomology 2 or 4 (2-6) Graduate-level counterpart of Entom 439; additional requirements. Credit not granted for both Entom 439 and 539.

540 Taxonomy of Immature Insects 2 or 4 (2-6) Graduate-level counterpart of Entom 440; additional requirements. Credit not granted for both Entom 440 and 540.

541 Advanced Insect Ecology 3 (2-3) Prereq Entom 343; general ecology course. Population and community dynamics, theory and application in natural and artificial systems. Field trips required. Cooperative course taught by UI (Ent 541), open to WSU students.

543 Predator-Prey Dynamics 1 Prereq calculus, general ecology, statistics. Dynamical consequences of interactions between predators and their prey at the population, community and ecosystem level.

547 Introduction to Biological Control 3 (2-3) Graduate-level counterpart of Entom 447; additional requirements. Credit not granted for both Entom 447 and 547.

550 Insect Physiology 4 (3-3) Prereq Chem 240, Zool 352; Entom 340 or 343 or Zool 322. General principles of insect physiology; the mechanisms of vital processes in insects; organ, cellular, subcellular, chemical and physical levels. Cooperative course taught by WSU, open to UI students (Ent 550).

551 Applied Biological Control: Weeds 1 Prereq ecology; principles of biological control. Principles and methodologies in biological control of weeds. Cooperative course taught jointly by WSU and UI (Ent 551).


553 Applied Biological Control: Microbial Control 1 Prereq microbiology, plant pathology, or entomology; principles of biochemistry. Principles and methodologies of microbial control of insect pests, weeds, and plant pathogens in agriculture and forestry. Cooperative course taught by UI (Ent 553), open to WSU students.

556 Insecticides: Toxicology and Mode of Action 1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Insecticides in terms of historical perspective, classification, synthesis, toxicity, mode of action, and metabolism.

557 Herbicides: Toxicology and Mode of Action 1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Herbicides in terms of historical perspective, classification, synthesis, toxicity, mode of action, and metabolism.

560 Pesticide Topics 1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Current issues concerning pesticides in terms of toxicity, mode of action, and metabolism.

562 Systems in Integrated Crop Management 3 (2-3) Graduate-level counterpart of Entom 462; additional requirements. Credit not granted for both Entom 462 and 562.


578 Physiological Ecology of Insects 1 Prereq Entom 343, Math 140. Effects of and reactions to physical factors in the environment by arthropods. Credit not granted for Entom 443 and 577, 578, 579.

579 Natural History of Insects 1 Prereq Entom 343, Math 140. Life history strategies and management of population of terrestrial arthropods. Credit not granted for Entom 443 and 577, 578, 579.

583 Physiological Interactions in Predator-Prey Relationships 1 Prereq Bio S 102, Rec general ecology. Intricate physiological and behavioral adaptations that have evolved in predation-prey relationships.

590 Special Topics in Entomology V 1-4 May be repeated for credit; cumulative maximum 10 hours. Graduate-level counterpart of Entom 490; additional requirements. Credit not granted for both Entom 490 and 590.

593 Seminar 1 May be repeated for credit. Prereq 20 hours biology. Reporting and discussing problems and research in entomology.

595 Noncropland Weed Biological Control Internship V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing, by interview only. Supervised individual practicum in noncropland weed biological control; professionally related field interaction. Cooperative course taught by WSU, open to UI students (Ent 595). S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Description of Courses

Integrated Pest Management

IPM 201 Introduction to Pest Management in a Quality Environment 2 Pest management to maximize plant protection and safeguard the quality of the environment.

399 Pest Management Internship V 1-4 Supervised individual practicum with IPM-oriented businesses, organizations, and governmental agencies; professionally related field interaction. S, F grading.

452 Pesticides and the Environment 2 Rec 12 hours Bio S. Immediate and prolonged effects of pesticides on man and other animals; legal and moral repercussions of pesticide use.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

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 training depth in an optional area of specialization. The program has identified nine optional areas of specialization: agricultural ecology, biological science, hazardous waste management, human ecology, environmental education, environmental quality (air & water), natural resources management, systems, and environmental/land use planning. (Fact sheets on each option are available from the ES/RP Program Office.) Students may also, in consultation with their advisor, develop an area of specialization outside of those identified. At least 40 of the total hours required for the Bachelor of Science in Environmental Science must be in the 300–400-level courses, 18 of which are in the chosen area of specialization (normally in not more than two departments). Majors in environmental science must satisfy General Education Requirements as specified for majors in the College of Science and the College of Liberal Arts. Many of these requirements are built into the curriculum below. Students should note the requirements with respect to Tier I, II, and III courses and also Areas of Coherence. 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.

ENVIRONMENTAL SCIENCE DEGREE PROGRAM (123 HOURS)

Freshman Year

First Semester
Chem 105 [P] (GER) 4
Engl 101 [W] (GER) 3
ES/RP 101 [B] or 150 [Q] (GER) 3 or 4
Math 140 [N] or 171 [N] (GER) 4

Second Semester
Anth 101 [S] or Soc 101 [S] (GER) 3
Arts & Humanities [H,G] (GER) 3
Chem 106 [P] (GER) 4
Econ 101 [S] (GER) 3
GenEd 110 [A] (GER) 3

Sophomore Year

First Semester
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Bio S 103 [B] (GER) 4
Engl 201 [W], 301 [W], or 402 [W] (GER) 3
ES/RP 210 3
Phys 101 [P] or 201 [P] (GER) 4

Second Semester
Bio S 104 [B] (GER) 4
Chem 240 or 340 & 341 4 or 5
GenEd 111 [A] or Geol 102 [P] (GER) 3 or 4
Phys 102 [P] or 202 [P] (GER) 4

Junior Year

First Semester
BC/BP 364 3
ES/RP 335 [M] 3

Second Semester
Anth 39 [K] (GER) 3
Bio S 372 4
Stat 212 [N] (GER) or 412 3 or 4
Electives 3

Senior Year

First Semester
Bio S 474 3
ES/RP 404 [M] 3
ES/RP 491 1
300–400-level Soc [S,K] (GER) 3
Electives 6

Second Semester
300–400-level Ag Ec or Econ 4
ES/RP 444 3
Tier III Capstone (GER) 3
Electives 6

NOTES

1 Or other 300–400-level Anth with [I] or [K] designation with advisor’s approval.
2 1 hour of ES/RP 490, 492, or 493, Special Topics, is required.
3 One of the following is suggested: Soc 315, 331, 430.
4 One of the following is suggested: Ag Ec 311, 425, 480, or Econ 472, 481.

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 g.p.a. 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 g.p.a. 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 not less 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 g.p.a. of at least 3.0, 10 semester hours of basic biological and/or physical sciences, and a faculty member to act as advisor. A total of 72 hours is required beyond the bachelor’s degree, 34 of which must be in graded course work.

Description of Courses

Environmental Science and Regional Planning

ES/RP


150 [Q] Natural Science in the Environment 3 (2-3) Introduction to scientific principles and problem solving with applications to studies of the environment.

174 Introduction to Meteorology and the Atmospheric Environment 3 Same as C E 174.

210 Microcomputer Models of Environmental Systems 3 Prereq Math 140 or 171; Rec ES/RP 101. Introduction to using microcomputers to model environmental systems. Cooperative course taught by WSU, open to UI students (EnvS 210).

301 Forest and Range Plant Resources 1 3 (2-3) Same as NATRS 301.

311 Natural Resource Economics 3 Same as Ag Ec 311.


375 Aspects of Sustainable Development 3 Same as I Bus 375.

385 GIS Primer 3 (2-2) Introduction to basic concepts and applications of geographic information systems (GIS), lab exercises on PC-based GIS packages. Cooperative course taught by UI (Geog 385), open to WSU students.

402 Human Health and the Environment 3 Prereq Bio S 103, 104, Chem 105, 106; ES/RP 335 or junior in ES/RP. Problem-solving approach to adverse effects on human health caused by contamination of environmental media or anthropogenic changes in ecosystems. Credit not granted for both ES/RP 402 and 502.

403 Environmental Geology 3 Same as Geol 403.

404 [M] The Ecosystem 3 Prereq Chem 240 or 340; Phys 102 or 202, Rec Bio S 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, radiocoeology and radiological health protection.

409 Applied Radiological Physics 3 (2-3) Prereq calculus course; Phys course; Rec ES/RP 406. Production, interactions and measurement of radiation, with application to radiological health protection concerns. Credit not granted for both ES/RP 409 and 509.

411 Limnology 2-3 Same as Zool 411.

412 [M] Natural Resource Policy and Administration 3 (2-2) Same as NATRS 438.

414 Environmental Biophysics 2 Same as Soils 414. Credit not granted for both ES/RP 414 and 514.

415 Environmental Biophysics Lab 1 (0-3) Same as Soils 415.

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.

418 Human Issues in International Development 3 Same as Anth 418.

419 Fundamentals of Risk Assessment 2 Prereq Bio S 103, 372; Math 107; Stat 412. Overview of risk assessment processes; identification of toxicological effects; introduction to methods used to quantify potential health and environmental risks.

420 Field and Laboratory Techniques in Environmental Science 2 May be repeated for credit; maximum 6 hours. Prereq Bio S 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.

424 Environmental Health Assessment 2 Prereq one course each in biology, calculus, chemistry, general ecology and physics; Rec ES/RP 406. Environmental transport, fate and effects of radioactive and hazardous materials. Credit not granted for both ES/RP 424 and 524.

425 Economic Analysis of Public Projects and Policies 3 Same as Ag Ec 425.

426 Population Analysis 3 Same as NATRS 426. Credit not granted for ES/RP 426 and 526.

427 Environmental Chemistry 2 Same as Chem 427. Credit not granted for both ES/RP 427 and 527.

428 Introduction to Pollution Prevention 3 Environmental, technical and legal aspects of pollution prevention. Cooperative course taught jointly by WSU and UI (Envs 428).

429 Population Theory 1 Same as NATRS 429. Credit not granted for both ES/RP 429 and 529.

444 Environmental Assessment 3 Rec Bio S 372. Analysis of environmental impact statements and their legal framework; methods of environmental assessment and team development of an impact statement. Credit not granted for both ES/RP 444 and 544. Cooperative course taught by WSU, open to UI students (Geog 444).


452 Environmental Microbiology 3 Same as Micro 452. Credit not granted for both ES/RP 452 and 552.

455 Environmental Psychology 3 Same as Psych 456.

470 Airphotos and Geomorphology 3 (2-3) Same as SoilS 474.

471 Meteorology 3 Same as C E 471. Credit not granted for both ES/RP 471 and 571.

472 Economic Development and Underdevelopment 3 Same as Econ 472.

473 Engineering Risk Assessment for Hazardous Waste Evaluations 3 Prereq senior standing; Rec stat course. Quantitative and qualitative approaches to assessing risks to public health and environment from chemical contaminants; toxicology, exposure assessment, risk characterization, and environmental modeling; credit reviews of specific toxins and actual waste site studies. Cooperative course taught by UI (Chem 480), open to WSU students.

480 Advanced Resource Economics 3 Same as Ag Ec 480.

481 Economics of Environmental Issues 3 Same as Econ 481.


490 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.

491 Senior Seminar 1 Prereq senior in ES/RP.

492 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours.

493 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours.

495 Undergraduate Internship V 1-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Practical experience in appropriate agencies; for career students in environmental science.

499 Cooperative Education Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Practical experience in appropriate agencies; for career students in environmental science.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

502 Human Health and the Environment 3 Graduate-level counterpart of ES/RP 402; additional requirements. Credit not granted for both ES/RP 402 and 502.

503 Natural Resource Planning 3 (2-3) Same as NATRS 503.
504 Ecosystem Management 3 Analysis of ecosystems; dual emphasis on ecological principles and development of methods and concepts to evaluate policies for management.
509 Applied Radiological Physics 3 (2-3) Graduate-level counterpart of ES/RP 409; additional requirements. Credit not granted for both ES/RP 409 and 509.
510 Applied Radiation Dosimetry 3 (2-3) Graduate-level counterpart of ES/RP 410; additional requirements. Credit not granted for both 410 and 510.
511 Legal Process 3 Rec ES/RP 444. Legal process in general and role of the judiciary in natural resource management. Cooperative course taught jointly by WSU and UI (Law 511).
513 Environmental Epidemiology 3 Prereq Stat 412; Rec Micro 420; Stat 422. Environmental epidemiologic methods to investigate environmental problems and familiarity with relevant scientific literature.
514 Environmental Biophysics 2 Graduate-level counterpart of ES/RP 414; additional requirements. Credit not granted for both ES/RP 414 and 514. Cooperative course taught by WSU, dedicated to UI students (Bot 532).
516 Radiation Biology 4 (3-3) Graduate-level counterpart of ES/RP 416; additional requirements. Credit not granted for both ES/RP 416 and 516.
517 Fate and Effects of Environmental Contaminants 3 Prereq graduate standing. Rec biochemistry, organic chemistry. Rational perspective on the environmental behavior and biological effects of contaminants.
519 International Development and Human Resources 3 Same as Anth 519.
524 Environmental Health Assessment 2 Graduate-level counterpart of ES/RP 424; additional requirements. Credit not granted for both ES/RP 424 and 524.
526 Population Analysis 1 Same as NATRS 526. Credit not granted for both ES/RP 426 and 526.
527 Environmental Chemistry 2 Same as Chem 527. Credit not granted for both ES/RP 427 and 527.
529 Population Theory 1 Same as NATRS 529. Credit not granted for both ES/RP 429 and 529.
530 Fundamentals of Industrial Safety 2 Prereq graduate standing or by interview only. Fundamentals for recognizing and controlling hazards and losses to protect the safety and health of workers.
532 Applied Environmental Toxicology 3 Prereq ES/RP 531 or P/T 505. Overview of the field of environmental toxicology; interactions of zoobiotics with natural systems.
534 Industrial Ecology: Theory and Practice 3 Complex relationships and interactions among industrial activities, the environment, and society and the need for a sustainable system.
534 Environmental Assessment 3 Graduate-level counterpart of ES/RP 444; additional requirements. Credit not granted for both ES/RP 444 and 534. 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.
547 Public Budgeting 3 Same as Pol S 546.
548 Environmental Law 3 By interview only. Environmental planning and protection, regulation of air and water pollution, waste disposal, use of pesticides and other toxic chemicals, and remedies for environmental injury. Cooperative course taught by UI (Law 947), open to WSU students.
549 Public Land Law 3 History of public lands, special problems arising from ownership of land by governments, legal issues incident, various uses of public land including land sales, mineral extraction, livestock grazing, timber harvest, recreation, wildlife protection, and preservation. Cooperative course taught by UI (Law 948), open to WSU students.
550 System Dynamics Models of Environmental Systems 3 Prereq Math 140 or 171; 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).
551 Energy Production and the Environment 2 Graduate-level counterpart of ES/RP 451; additional requirements. Credit not granted for both ES/RP 451 and 551.
552 Environmental Microbiology 3 Same as Micro 552. Credit not granted for both ES/RP 452 and 552.
555 Environmental Planning 3 State, local and federal approaches to environmental planning and their interactions in private and public land use and development decisions.
556 Insecticides: Toxicology and Mode of Action 1 Same as Entom 556.
557 Herbicides: Toxicology and Mode of Action 1 Same as Entom 557.
558 Pesticide Topics 1 Same as Entom 558.
560 Watershed Management 3 Same as NATRS 560.
567 Advanced Applications in GIS 4 (1-6) GIS concepts using ARC/INFO geographic information systems.
571 Meteorology 3 Same as C E 571. Credit not granted for both ES/RP 471 and 571.
573 Engineering Risk Assessment for Hazardous Waste Evaluations 3 Graduate-level counterpart of ES/RP 473; additional requirements. Credit not granted for both ES/RP 473 and 573. Cooperative course taught by UI (CHE 580), open to WSU students.
575 Geographic Information Systems 3 Prereq Geol 385. Computerized management of data organized on regional geographic bases; preparation, overlay, coding, and manipulation of data for regional planners and land managers. Cooperative course taught by UI (Geog 475), open to WSU students.
584 Engineering Aspects of Aquatic Biology 4 (3-3) Same as C E 584.
585 Aquatic System Restoration 3 (2-3) Same as C E 585.
586 Introduction to Geographic Information Systems 4 (2-6) Graduate-level counterpart of ES/RP 486; additional requirements. Credit not granted for both ES/RP 486 and 586.
590 Special Topics 2 May be repeated for credit; cumulative maximum 6 hours. Cooperative course taught by WSU, open to UI students (Geog 590).
591 Special Topics 2 May be repeated for credit; cumulative maximum 4 hours.
592 Special Topics V 1-4 May be repeated for credit; cumulative maximum 4 hours.
593 Seminar in Environmental Science and Regional Planning 1 May be repeated for credit; cumulative maximum 8 hours.
594 Environmental and Natural Resources Issues and Ethics 2 or 3 Same as NATRS 594.
595 Graduate Internship V 2-5 By interview only. Practical work experience in appropriate agencies; for graduate career students. S, F grading.
596 Cooperative Education Internship V 2-5 May be repeated for credit; cumulative maximum 5 hours. By interview only. Practical experience in appropriate agencies; for graduate career students in environmental science and regional planning. S, F grading.
597 Technical and Public Communications in Environmental Science 2 Prereq technical writing course; Rec public speaking course. Development of written and oral communication skills for practical application in the field of environmental science.
600 Special Projects or Independent Study Variable credit. S, F grading.
700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.
702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.
800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Department of Fine Arts

Professor and Department Chair, C. Watts; Professors, R. Coates, J. Dollhausen, R. Helm, H. Ho, J. Hockenhull, P. Siler; Associate Professors, A. Christenson, D. Haynes, P. Lee, R. Robillard; Assistant Professors, S. Deutchman, C. Ivory, M. Mandel, P. Nguyen, S. Kester.

The Fine Arts Department offers a diversity of experiences in the visual arts. The department offers courses of study leading to the degrees of Bachelor of Arts in Fine Arts, Bachelor of Fine Arts and Master of Fine Arts. Our 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 electronic imaging. These are supported by a strong art history component. Many career possibilities involving art exist in the world outside the university. The reality of having a degree in Fine Arts versus what you can do with it is an issue of great concern to the faculty and is positively addressed within our program.

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.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.
For the degree Bachelor of Fine Arts a total of at least 70 hours in fine arts are required; 46 of these must be in 300-400-level courses.

**Required Courses:**

**BACHELOR OF FINE ARTS DEGREE PROGRAM (120 HOURS)**

<table>
<thead>
<tr>
<th>Foundation</th>
<th>Hours</th>
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<tbody>
<tr>
<td>FA 103</td>
<td>3</td>
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<tr>
<td>Art History</td>
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<tr>
<td>Drawing</td>
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<tr>
<td>Painting</td>
<td>3</td>
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<tr>
<td>Sculpture</td>
<td>3</td>
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<tr>
<td>Contemporary Issues Seminar</td>
<td>2</td>
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<td>FA 498</td>
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<td>Senior Exhibit</td>
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<td>FA 493</td>
<td>2</td>
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<td>GERs</td>
<td>39</td>
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<tr>
<td>Foreign Language</td>
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<tr>
<td>Electives</td>
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</tr>
<tr>
<td>F A 300-400-level electives (major emphasis)</td>
<td>18</td>
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<tr>
<td>F A 300-400-level electives (minor emphasis)</td>
<td>9</td>
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<tr>
<td>F A other electives</td>
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<tr>
<td>Writing in the Major</td>
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**Degree Program Requirements**

Honors students complete Honors Requirements in place of General Education Requirements.

For the degree Bachelor of Arts in Fine Arts a total of at least 47 hours of fine arts is required; 29 of these hours must be in 300-400-level courses.

**BACHELOR OF ARTS IN FINE ARTS DEGREE PROGRAM (120 HOURS)**

<table>
<thead>
<tr>
<th>First Semester</th>
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<tr>
<td>FA 103</td>
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<td>FA 101</td>
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<tr>
<td>GenEd 110 [A]</td>
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<tr>
<td>Intercultural [I,G,K] (GER)</td>
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<tr>
<td>Second Semester</td>
<td>Hours</td>
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<tr>
<td>Communications Proficiency [C,W] (GER)</td>
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<td>FA 110</td>
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<td>FA 111</td>
<td>3</td>
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<tr>
<td>GenEd 111 [A]</td>
<td>3</td>
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<tr>
<td>Math Proficiency [N] (GER)</td>
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<tr>
<td>Sophomore Year</td>
<td>Hours</td>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Biological Sciences [B] (GER)</td>
<td>4</td>
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<tr>
<td>FA 201</td>
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<td>FA 320</td>
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<td>FA 350</td>
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**Second Semester**

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**Junior Year**

**First Semester**

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**Second Semester**

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**Senior Year**

**First Semester**

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**Second Semester**

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**Note for Secondary School Program in Art Education:** Required courses for F A students: 12 hours; 4 hours F A electives; F A 389, T & L 492. Recommended electives for F A and T & L majors: F A 101; 303 or 304; 340, 370 and 3 hours 300-400-level electives in F A.

**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. Bachelor of Fine Arts certification requirements:

1. 12 hours from F A 103, 110, 111, 320, 350;
2. 3 hours from F A 201 or 202;
3. 6 additional hours in major emphasis;
4. 2.0 cumulative g.p.a. in F A courses;
5. slide portfolio and exhibit presentation of original art work.

Bachelor of Arts in Fine Arts certification requirements:

1. 12 hours from F A 103, 110, 111, 320, 350;
2. 3 hours from F A 201 or 202;
3. 2.0 cumulative g.p.a. in F A courses.

**Art Minor**

A minor in art requires 18 hours including F A 103, Fundamentals; F A 110, Drawing; and F A 201, 202, or 304, Modern Art. The remaining 9 hours of electives must be in 300-400-level courses.

**Art History Minor**

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.

**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 Students and Scholars.

**Graduate Study**

The Fine Arts Department graduate program offers the MFA degree in two-dimensional studio arts and in three-dimensional studio arts. The student may place major or minor emphasis in any of the following areas: drawing, electronic imaging, painting, photography, printmaking, ceramics, and sculpture.

**Description of Courses**

**Art History**

FA

101 [H] Introduction to Art 3 For nonmajors. Appreciation of various visual art forms; emphasis on contemporary period.

201 [H] World Art History 3 Historical survey of art and architecture from prehistory through 1450.

202 [H] World Art History 3 Historical survey of art and architecture from 1450 to the present.


302 [G] The Arts of Asia 3 Prereq GenEd 110, 111. Art and architecture of India, China, and Japan, within their historical, religious, and cultural contexts.

303 [H] Modern Art-19th Century 3 Prereq FA 201, 202. Modern art in the early modern period from around the globe.


308 [H] [M] Women Artists I, Middle Ages-1900 3 Survey of women artists from Middle Ages to end of nineteenth century.

310 [H] [M] Women Artists II, Twentieth Century 3 Survey of women artists in the twentieth century.

403 [M] Modern Theories of Art 3 Selected topics in 19th and 20th century theories of art.

404 [M] Advanced Non-western Art History 3 May be repeated for credit; cumulative maximum 6 hours. Prereq FA 201, 202. Different topics related to the arts in Africa the Americas, Oceania, and Asia.

405 [M] Contemporary Art: Theory and Practice 3 Contemporary theories of art and how those theories are developed.
498 Contemporary Issues Seminar 2 May be repeated for credit; cumulative maximum 4 hours. Prereq F A 304. Research seminar examining current issues confronting art and artists.

500 Graduate Art History 2 May be repeated for credit; cumulative maximum 6 hours. Prereq 9 hours undergraduate art history.

**Studio Courses**

Note: unless specified, media used in studio courses are at the option of the instructor.

**Foundation**

F A

103 Art 3 (0-6) Introduction to formal elements through studio experience.

**Drawing**

F A

110 Drawing 3 (0-6) Composition in pictorial space. visualization of ideas, drawing from life. 111 Figure Drawing 3 (0-6) Prereq F A 103, 110.

312 Advanced Drawing 3 (0-6) May be repeated for credit. Prereq F A 110 or 111. Advanced projects using drawing media and process.

313 Figure Drawing 3 (0-6) May be repeated for credit. Prereq F A 111.

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.

**Painting**

F A

320 Beginning Painting 3 (0-6) Prereq F A 103, 110. Basic painting; introduction to composition and color structure.

321 Painting 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq F A 320.

322 Transparent Watercolor 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq F A 103, 110.

423 Advanced Painting 3 (0-6) or 6 (0-12) May be repeated for credit. Prereq F A 321, major in F A.

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.

522 Graduate Painting 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.

**Electronic Imaging**

F A

331 Art and Its Relationship to New Technologies 3 Prereq F A 103, 110. Introduction to visual communication through technology; historical overview and cultural implications of photography, film, video, and electronic art.

332 Introduction to Electronic Imaging 3 (0-6) Prereq F A 331. Principles and processes of electronic image processing, image/text design and designing for the internet.

433 Intermediate Electronic Imaging 3 (0-6) or 6 (0-12) May be repeated for credit. Prereq F A 332. Intermediate image processing techniques/text design, internet projects and electronic drawing; emphasis on individual concepts and creativity.

434 Advanced Electronic Imaging 3 (0-6) or 6 (0-12) May be repeated for credit. Prereq F A 433, major in F A. Advanced studio/seminar for students to develop independent projects within the digital environment based on concepts and skills developed in F A 331, 332, 433.

495 Electronic Imaging Internship 6 (0-12) Prereq 6 credits in F A 434, major in F A. Placement in work-related electronic imaging environments for practical application and experience.

530 Graduate Electronic Imaging 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Application of image/text, electronic drawing, internet projects, multimedia, other aspects of electronic tools.

531 Graduate Electronic Imaging 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Advanced research in projects relating to electronic tools.

532 Graduate Electronic Imaging 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Exploration of experimental techniques, concepts and studies using electronic technology.

**Ceramics**

F A

340 Ceramics 3 (0-6) Prereq F A 103, 110. Forming processes; the potter’s wheel; glazing; firing.

341 Ceramics 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq F A 340.

442 Ceramics 3 (0-6) or 6 (0-12) May be repeated for credit. Prereq F A 341.

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.

**Sculpture**

F A

350 Sculpture 3 (0-6) Prereq F A 103, 110. Composition of form in the three-dimensional space.

351 Sculpture 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq F A 350.

452 Sculpture 3 (0-6) or 6 (0-12) May be repeated for credit. Prereq F A 351, major in F A.

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.

**Printmaking**

F A

370 Printmaking 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq F A 103, 110. Variety of techniques: screenprinting, etching and lithography; emphasis is given to screenprinting during particular terms.

471 Printmaking 3 (0-6) or 6 (0-12) May be repeated for credit. Prereq F A 370.

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.

**Photography**

F A

380 Introduction to Photography 3 Prereq F A 103, 110. An experience with cameras and associated materials and techniques; photography in a historical and aesthetic context.

381 Photography 3 (0-6) Prereq F A 380. Camera and black/white film used in conjunction with studio and darkroom techniques; composition and aesthetic concepts introduced.

382 Photography 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq F A 381. Expansion of conceptual building in black/white darkroom and camera techniques; research and portfolio.

385 Digital Imaging/Color Photography 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Introduction to digital imaging software, digital cameras, scanning, and digital output options; conventional chemical-based color photography techniques.

483 Photography 3 (0-6) or 6 (0-12) May be repeated for credit. 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.

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.

**Art Education**

F A

390 Elementary School Art Education 2 (1-2) Prereq certified Education major, EdPsy 301 or c/l. Rec F A 201 or 202. Theory and methods for the study and making of art including practice using art media for creative expression.

**Gallery Procedures**

F A

490 Gallery Procedures with Museum of Art 3 (0-6) or 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.

**Special Topics, Seminars, and Thesis**

F A

361 Special Topics—Drawing V 1-6 May be repeated for credit.

362 Special Topics—Painting V 1-6 May be repeated for credit.

363 Special Topics—Electronic Imaging V 1-6 May be repeated for credit.

364 Special Topics—Ceramics V 1-6 May be repeated for credit.

365 Special Topics—Sculpture V 1-6 May be repeated for credit.

366 Special Topics—Printmaking V 1-6 May be repeated for credit.

367 Special Topics—Black and White Photography V 1-6 May be repeated for credit.

368 Special Topics—Color Photography V 1-6 May be repeated for credit.

400 Special Topics V 1-6 May be repeated for credit; cumulative maximum 18 hours.

401 Special Topics—Art History V 1-6 May be repeated for credit. Prereq 201, 202.
Northwest, at salaries that are generally equal to or better than those of other professions at equivalent levels of training and experience.

The undergraduate food science curriculum closely follows the recommendation of the national professional organization, the Institute of Food Technologists, and provides the student with a working knowledge of food science and food technology. In the first two years of college, students enroll in science courses and complete most General Education Requirements. This part of the curriculum can be completed at most community colleges prior to transferring into the food science program. In the junior and senior years, the curriculum emphasizes courses in food processing, food chemistry, food microbiology, and other specialized areas such as the processing and manufacture of cereal, dairy, fruit, vegetable, meat, and poultry products. Students with specific interest and career goals can gain additional education and training in those areas by taking elective courses in their areas of interest, participating in internships with food companies, and/or conducting a special problems project with a faculty member.

Human Nutrition

General Dietetics is the first step toward obtaining training in dietetics to prepare for work related to food and nutrition. By following the prescribed course of study of foods (nutrition and foodservice management based on chemistry, biochemistry, physiology and business), the student fulfills the minimum academic requirements of The American Dietetic Association (ADA) as well as those of the department and university. The student must gain post-baccalaureate supervised practice experience through a dietetic internship before becoming eligible for registration and ADA membership. Internships in hospitals or selected organizations are very competitive and are available mostly in the midwest and eastern part of the United States. Those completing the program of study for a Bachelor of Science degree and an internship are qualified for a variety of positions as members of a management team and/or healthcare team in hospitals; schools, colleges, and university food service; restaurants; and in government and private agencies.

The Coordinated Undergraduate Option in General Dietetics combines classroom education with supervised experience in dietetics. Course work is similar to that described for general dietetics. In this four-year option, the student completes the academic requirements for the department and university, as well as the supervised practice requirements for registration and membership in the American Dietetic Association and for taking the examination to become a registered dietitian. Graduates of this option qualify for the same kinds of positions as do the graduates of the General Dietetics Option who complete a post-baccalaureate internship.

After completing academic and performance requirements, it is necessary to pass a registration examination which is given twice each year under the auspices of The Commission on Accreditation Approval of Dietetic Education. When students successfully complete the examination, they are Registered Dietitians and are entitled to use the initials R. D. to indicate professional competence.

Other Opportunities

The department offers minors in food science, foods and nutrition, and food service management. In addition to undergraduate studies, the department offers courses of study leading to the degrees of Master of Science in Food Science, Master of Science in Human Nutrition, Doctor of Philosophy (Food Science) and Doctor of Philosophy (Nutrition). An accelerated program to obtain both a Bachelor of Science degree in Food Science and Human Nutrition and a Master of Science degree in Human Nutrition within a five-year period is also offered.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

FOOD SCIENCE DEGREE PROGRAM (120 HOURS) ✯FYDA

This degree program has been developed for the student who is interested in the science of food processing. Emphasis is placed on the scientific aspects of processing and it offers more laboratory analysis experience.

Freshman Year

First Semester
Che 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math 140 [N] or 171 [N] (GER) 4
Second Semester
Arts and Humanities [H,G] GER 3
Bio S 103 [B] (GER) 4
Chem 106 [P] (GER) 4
FSHN 170 2
GenEd 111 [A] (GER) 3

Sophomore Year

First Semester
Ag Ec 201 [S] (GER) 3
Chem 240 4
Food Production Course2 4
Phys 101 [P] (GER) 4
SpCom 102 [C] (GER) 3
Second Semester
A S 314 or FSHN 233 3
BC/BP 364 4
FSHN 200 3
Micro 301 4

Junior Year

First Semester
Ag Ec 350 3
FSHN 303 3
FSHN 416 2
FSHN 417 2
FSHN Commodity Course3 3
Stat 212 [N] (GER) 4
Second Semester
Arts and Humanities [H,G] or Social Sciences [S,K] GER 3
FSHN 422 or 4504 3
FSHN Commodity Course5 3
FSHN 433 3
FSHN 434 1
Intercultural Studies [J,G,K] GER 3

Senior Year

First Semester
Engl 402 [W] (GER) 3
FSHN 402 1

Department of Food Science and Human Nutrition

Professor and Department Chair, A. McCurdy; Professors, S. Butkus, F. Hoskins, L. Lueddecke, L. Massey, S. Spayd, B. Swanson; Associate Professors, J. Armstrong-Shultz, K. Beerman, Z. Czuchajowska, B. Dougherty, C. Edwards, V. Hillers, M. Mitchell, D. Pond-Smith, J. Powers, T. Shultz; Assistant Professors, S. Clark, S. McGuire, B. Rasco, C. Weisskopf; Instructors, L. Jensen, D. Swanson, S. Scheunemann.

The Department of Food Science and Human Nutrition offers courses of study in two undergraduate major fields, food science and dietetics with different options and areas of interests available in each field. Students enrolled in these options or areas of interests complete prescribed courses of study leading to the Bachelor of Science in Food Science and Human Nutrition.

Food Science

Food science students at Washington State University learn how to convert food commodities into high quality food products that are safe and nutritious. 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 the nutritional needs of the world. The many facets of food science create a wide variety of career opportunities in industry, government, and education. Graduates from Washington State University have traditionally received multiple offers of employment, many in the Pacific Northwest, at salaries that are generally equal to or better than those of other professions at equivalent levels of training and experience.

The undergraduate food science curriculum closely follows the recommendation of the national professional organization, the Institute of Food Technologists, and provides the student with a working knowledge of food science and food technology. In the first two years of college, students enroll in science courses and complete most General Education Requirements. This part of the curriculum can be completed at most community colleges prior to transferring into the food science program. In the junior and senior years, the curriculum emphasizes courses in food processing, food chemistry, food microbiology, and other specialized areas such as the processing and manufacture of cereal, dairy, fruit, vegetable, meat, and poultry products. Students with specific interest and career goals can gain additional education and training in those areas by taking elective courses in their areas of interest, participating in internships with food companies, and/or conducting a special problems project with a faculty member.

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### HUMAN NUTRITION GENERAL DIETETICS DEGREE PROGRAM (126 HOURS)

#### Freshman Year

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<th>Semester</th>
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<td>GenEd 110 [A] or 111 [A] (GER)</td>
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<td></td>
<td>Math Proficiency [N] (GER)</td>
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#### Sophomore Year

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#### First Semester

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#### Second Semester

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<tr>
<td>FSHN 201</td>
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<td>FSHN 380</td>
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<td>FSHN 430</td>
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<td>H D 204</td>
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#### Junior Year

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<td>FSHN 436</td>
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<td>FSHN 426 [M]</td>
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#### Senior Year

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### DEGREE PROGRAM (136 HOURS)

#### FYDA

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<tr>
<td>First</td>
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#### Second Semester

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<td>FSHN 201</td>
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<td>FSHN 380</td>
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<td>FSHN 430</td>
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<td>FSHN 436</td>
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#### Second Semester

<table>
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<tr>
<th>Courses</th>
<th>Hours</th>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>FSHN 380</td>
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#### FYDA

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<td></td>
<td>FSHN 480</td>
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<td>Second</td>
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<td>FSHN 440</td>
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<td>Tier III Capstone (GER)</td>
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### COORDINATED UNDERGRADUATE OPTION IN GENERAL DIETETICS (CUOGD) DEGREE PROGRAM (136 HOURS)

Application for admission to the CUOGD is ordinarily made during the spring semester of the sophomore year. Application deadline is February 1. Transfer students should consult the director for advice on applying and planning.

#### Freshman Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Courses</th>
<th>Hours</th>
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<tbody>
<tr>
<td>First</td>
<td>Chem 101 [P] (GER)</td>
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<td>Communication Proficiency [C,W] (GER)</td>
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<td>Engl 101 [W] (GER)</td>
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<tr>
<td></td>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
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<tr>
<td></td>
<td>Math Proficiency [N] (GER)</td>
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<td>Second</td>
<td>Chem 102 [P] (GER)</td>
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<td>Micro 101 [B] (GER)</td>
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<tr>
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<td>Psych 105 [S] or Soc 101 [S] (GER)</td>
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#### Sophomore Year

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<th>Semester</th>
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<tbody>
<tr>
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<td>Zool 315</td>
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### Social Sciences (GER) 5 3


3 See advisor or Director of CUOGD.

1 Math 205 is recommended.

2 Optional for second semester sophomore year; can be taken first semester of junior year if not following the CUOGD option.

4 Recommended that this requirement be fulfilled earlier.

For application and admission information, write Department Chair, FSHN Building, Washington State University, Pullman, WA 99164-6376, or phone (509) 335-3843.

### Minors in Food Science and Human Nutrition

**Food Science:** 19 semester hours, of which must be in 300-400-level courses. FSHN 303, 416, 460, and 461 are required; other courses must be taken from the food science area.

**Food Service Management:** 18 or 19 semester hours, of which must be in 300-400-level courses. FSHN 120, 121, 130, 380, 480, plus H A 358 for hotel and restaurant administration majors or FSHN 281 and H A 359 for other majors.
Foods and Nutrition: 18 or 19 semester hours, 8 of which must be in 300-400-level courses. FSHN 120/121; 213, 330, 331; 420 or 430 are required. BC/BP 364 is a required prerequisite.

Transfer Students
Students planning to transfer to the department should coordinate their programs of study with departmental advisors to select courses, in the proper sequence, that are applicable to the degree requirements.

Preparation for Graduate Study
Students who plan to work toward an advanced degree should seek advice from their advisors in the selection of courses. This will ensure the courses selected will strengthen their education in areas needed for successfully completing an advanced degree program.

Students from related fields who wish to obtain an advanced degree in food science or nutrition are encouraged to apply as they may be well prepared for graduate studies. They would be required to take certain key courses required of undergraduates in addition to those needed for their graduate program.

Students who identify an interest in graduate work early in their studies are encouraged to participate in an accelerated course of study in which both a BS and MS can be earned in five years. A student should 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.

Description of Courses

Food Science and Human Nutrition
FSHN 120 Food Preparation 4 (3-3) Principles and methods of food preparation, including physical and chemical changes, quality, composition and use of foods.

FSHN 130 [B] Nutrition for Living 3 Information related to the interaction of nutrients in the body and factors which govern nutrient requirements.

FSHN 200 Food for Mankind 2 Interrelationships between people and their food supply; broad coverage of contemporary food-related topics.

FSHN 200 Food Quality Assurance 3 (2-2) Methodology and design of quality assurance programs for analyzing microbial and chemical hazards and physical factors associated with food quality. Cooperative course taught by WSU, open to students.

FSHN 201 Professional Dietetics 1 Structure, function and history of the American Dietetic Association, and educational requirements and roles of registered dietitian.

FSHN 210 The Science of Viticulture and Enology 2 Aspects of grapes and wines including fermentation and processing, physiology of alcohol and other components, history, general survey of wines of the US and the world, and evaluation methods; guest lecturers from the industry. Cooperative course taught by UI (FST 210), open to WSU students.

FSHN 233 Human Nutrition 3 Rec Bio S or Chem course; or Zool 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.

FSHN 281 Quantity Food Production Laboratory 1 (0-3) Prereq FSHN 120, 121; el in H A 359. Recipe adjustment and costing; preparing and serving food in quantity.

FSHN 301 Dairy Products 3 (2-3) Prereq Micro 101 or 301; org chem. Specialized techniques and practices of dairy product manufacturing and marketing. Field trip required. Cooperative course taught by WSU, open to students.

FSHN 302 Meat and Poultry Products 3 (2-3) Prereq Micro 101 or 301; org chem. Specialized techniques and practices of meat, poultry, and egg processing and marketing. Field trip required.

FSHN 303 [M] Food Processing 3 (2-3) Prereq Micro 101 or 301; org chem. Specialized techniques and concepts of food fruit and vegetable processing and marketing. Field trip required. Cooperative course taught by WSU, open to students.

FSHN 304 Cereal Products 2 Prereq org chem. Technical principles relating to the production and commercial processing of legume and cereal foods. Field trip required. Cooperative course taught by UI (FST 304), open to WSU students.

FSHN 305 Nutrition Related to Fitness and Sport 3 Same as Ath T 305.

FSHN 330 [M] Physiological Nutrition 3 Prereq Chem 240; FSHN 130 or 233; Zool 251, 315. Functional chemistry of nutrients in physiological systems and nutrient interactions.

FSHN 331 Nutrition in the Human Life Cycle 3 Rec FSHN 130 or 233. How growth and development impacts nutrient requirements throughout the life cycle. Cooperative course taught jointly by WSU and UI (FCM 476).

FSHN 350 Dynamics of Dietetics 3 Rec FSHN 130 or 233; FSHN 120, 121. Dynamics of communication and counseling in nutritional care management and community nutrition in health and disease.

FSHN 370 Food Laws and Quality 3 Food laws, industry standards and qualities of foods necessary for consumer acceptance; sanitation.

FSHN 380 Management in Food Service Systems 1.3 Rec FSHN 281, H A 359. Management process, functions, inventory procurement and personnel management in food service.

FSHN 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. Credit not granted for both FSHN 401 and 501.

FSHN 402 Seminar in Food Science 1 May be repeated for credit; cumulative maximum 2 hours. Current literature and special reports.

FSHN 403 Food Security 3 Prereq junior standing. Examination of people’s access to and use of food from multidisciplinary perspectives, emphasizing critical thinking and problem solving.

FSHN 404 Food Product Development 2 Prereq senior standing; BC/BP 364. Development of food products from concept to marketplace. Cooperative course taught by WSU, open to students.

FSHN 405 Eating Disorders 2 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 (FCM 405), open to WSU students.

FSHN 416 Food Microbiology 2 Prereq introductory microbiology. Purpose for enumeration, detection and identification of microorganisms in food products; physical, chemical and environmental factors influencing growth and survival of foodborne microorganisms; pathogenic and spoilage microorganisms in food and their control. Cooperative course taught by UI (FST and MMBB 416), open to WSU students.

FSHN 417 Food Microbiology Laboratory 2 (0-6) Prereq c/l in FSHN 416. Methods of enumeration, detection and identification of spoilage and pathogenic microorganisms in foods. Cooperative course taught by UI (FST 417), open to WSU students.

FSHN 420 Comparative Foods 2 Rec organic chemistry. Experimental foods taught by means of demonstrations; chemical and physical principles in the preparation of foods.

FSHN 422 Food Quality Evaluation 3 (2-3) Prereq statistics course. Techniques in evaluation of quality of foods by sensory and instrumental methods. Cooperative course taught by WSU, open to UI students (FST 422).

FSHN 426 [M] Community Nutrition 3 Prereq FSHN 330, 331; Rec FSHN 436. Needs assessment, planning, and evaluation in community nutrition programs. Cooperative course taught jointly by WSU and UI (FCM 473).

FSHN 427 Nutritional Assessment 1 (0-3) Rec FSHN 233, senior standing. Basic skills and concepts for determining nutritional status of ambulatory adults using dietary intakes, dietary standards, anthropometric and biochemical measures.

FSHN 430 Human Nutrition, Intermediary Metabolism 3 Prereq BC/BP 364, FSHN 330, Zool 251. Biochemical roles of nutrients and processes of intermediary metabolism affecting man’s need for food; integration of biochemical pathways of major and minor nutrients; important nutritional diseases and controversies.

FSHN 433 [M] Agricultural Processing 3 Same as AgTM 433.

FSHN 434 Agricultural Processing Lab 1 (0-3) Same as AgTM 434.

FSHN 435 Medical Nutrition Therapy 3 Prereq FSHN 430 or c/l. Nutrition principles applied to pathological conditions in people.

FSHN 436 Nutrition Education 3 Prereq FSHN 130, 233, or 331. Individual and group nutrition education programs; methods; resources, settings, and community structures for guiding change in nutritional behavior.

FSHN 437 Medical Nutrition Therapy Laboratory 1 (0-3) Prereq c/l in FSHN 435. Nutritional care planning; modified diets; nutritional assessment and dietary analysis in clinical care settings.

FSHN 438 Readings in Foods and Nutrition 2 Rec FSHN 480 or c/l. Reports, discussions and reviews of recent scientific literature and developments in foods and food systems management. Credit not granted for both FSHN 438 and 538.
439 Current Topics in Nutrition 2 Prereq FSHN 430. Analysis of scientific, popular and legislative articles pertaining to topics of current interest in nutrition. Credit not granted for both FSHN 439 and 539.

440 Advanced Medical Nutrition Therapy 3 By interview only. Advanced nutrition principles applied to pathological conditions in humans and principles of participation in delivery of nutritional care.

450 Food Fermentations 3 (2-3) Prereq Chem 240, Micro 301; Rec BC/BP 364. Principles and procedures of fermentation of fruits and vegetables, meat products, and dairy products. Credit not granted for both FSHN 450 and 550. Cooperative course taught by WSU, open to UI students (FST 450).

460 Food Chemistry 3 Prereq biochem, Chem 240; Rec BC/BP 364. Fundamentals of food chemistry; composition of foods and the changes that occur during processing. Cooperative course taught by WSU, open to UI students (FST 460).

461 [M] Food Chemistry Laboratory 1 (0-3) Rec FSHN 460 or c/l. Experiments related to the properties, reactions, and interactions of chemical components of foods. Cooperative course taught by WSU, open to UI students (FST 461).

462 Food Analysis 4 (2-6) Prereq microbiology, organic chemistry. Introductory food analysis; methods common to many food commodities. Cooperative course taught by WSU, open to UI students (FST 462).

470 Advanced Food Technology 3 Prereq FSHN 416, 433 or c/l. Physical principles of food preservation and recent advances in food technology. Credit not granted for both FSHN 470 and 570. Cooperative course taught by WSU, open to UI students (FST 470).

475 Supervised Practice in Dietetics I 3 (0-9) By interview only. Students in CUOGD programs receive supervised practical experience each semester during the junior and senior years.

476 Supervised Practice in Dietetics II 3 (0-9) Prereq FSHN 475. Students in CUOGD programs receive supervised practical experience each semester during the junior and senior years.

477 Supervised Practice in Dietetics III 8 (0-24) Prereq FSHN 476. Students in CUOGD programs receive supervised practical experience each semester during the junior and senior years.

478 Supervised Practice in Dietetics IV 8 (0-24) Prereq FSHN 477. Students in CUOGD programs receive supervised practical experience each semester during the junior and senior years.

480 Management in Food Service Systems I 3 Prereq FSHN 380. Management theories, communication, financial planning, and equipment in food service systems.

485 Clinical Experience in Food Service Systems 2 (1-3) By interview only. Experience in food systems management in clinical settings.

495 Internship in Food Science and Human Nutrition 2 May be repeated for credit; cumulative maximum 4 hours. Prereq sophomore standing. Students work full time in industrial assignments with prior approval of advisor and industrial supervisor. S, F grading.

498 Food Practicum V 1 (0-3) to 8 (0-24) May be repeated for credit; cumulative maximum 8 hours. Prereq graduate standing. Supervised experiences of working in one or more food-related businesses, organizations, and agencies. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Topics in Food Science and Human Nutrition V 1-3 May be repeated for credit; cumulative maximum 6 hours. Graduate-level counterpart of FSHN 401; additional requirements. Credit not granted for both FSHN 401 and 501.

504 Advanced Human Nutrition 4 Prereq graduate standing. Scientific basis of human nutrient requirements, dietary allowances and assessment techniques. Cooperative course taught by WSU, open to UI students (FCS 514).

508 Seminar Written 2 May be repeated for credit. Planning, writing, reporting, reviewing and evaluating current food-related research.

509 Seminar Oral 1 May be repeated for credit. Development of skills and communication tools and techniques for oral presentations of current food science and human nutrition research.

510 Advanced Food Chemistry 3 Rec biochemistry, food chemistry. Chemical, physical, and toxicological properties of water, proteins, pigments, synthetic colors, minerals, miscellaneous food additives, and natural toxicants. Cooperative course taught by WSU, open to UI students (FST 510).

511 Food Carbohydrates, and Lipids 3 Rec biochemistry, food chemistry. Occurrence, structure, chemical and physical properties; and functions of carbohydrates and lipids, in foods. Cooperative course taught by WSU, open to UI students (FST 512).

512 Food Proteins and Enzymes 2 Prereq biochemistry, food chemistry (FSHN 460). Chemistry/ biochemistry of proteins/enzymes applied to food research and industry; protein functionality/enzyme technology application to food industry. Cooperative course taught by WSU, open to UI students (FST 513).

513 Mineral and Vitamin Metabolism 4 Same as A S 513.

520 Research Methods in Behavioral Nutrition 3 Prereq FSHN 130 or 233; Rec FSHN 426 or 436; statistics course. The application of behavioral theories and qualitative/quantitative methods of data collection to behavioral nutrition research. Cooperative course taught by WSU, open to UI students (FCS 520).

521 Research Techniques in Nutrition 3 (1-6) Rec 6 hours 300-400-level nutrition. Methods of conducting field, applied and metabolic studies in human nutrition.

522 Food Quality Evaluation 3 (2-3) Prereq 300-400-level statistics course. Advanced studies of psychophysical testing sensory and instrumental analysis of foods and multivariate statistical analysis of sensory data. Cooperative course taught by UI (FST 522), open to WSU students.

526 Advanced Community Nutrition 3 Rec 300-400-level nutrition course; by interview only. Component of community nutrition programs-needs assessment, planning, intervention, evaluation; application of concepts to case studies. Cooperative course taught by WSU, open to UI students (FCS 526).


531 Nutrition for Athletes 2 Rec 300-400-level nutrition course; by interview only. Assessment, evaluation, and treatment of nutritional problems of the aged.

533 Pathophysiology of Human Nutrition 3 Rec BC/BP 364; FSHN 435; Zool 353. Protein, fat, carbohydrate and other nutrient pathophysiology in the development and treatment of major human diseases.

538 Readings in Foods and Nutrition 2 Graduate-level counterpart of FSHN 438; additional requirements. Credit not granted for both FSHN 438 and 538.

539 Current Topics in Nutrition 2 Graduate-level counterpart of FSHN 439; additional requirements. Credit not granted for both FSHN 439 and 539.

550 Food Fermentations 3 (2-3) Graduate-level counterpart of FSHN 450; additional requirements. Credit not granted for both FSHN 450 and 550. Cooperative course taught by WSU, open to UI students (FST 550).

561 Sports Nutrition 3 Prereq by interview only. Macronutrient and selected micronutrient utilization during exercise and restoration after feeding, dietary surveys of athletes, dietary ergonomic aids and discussion of the origins of dietary recommendations for athletes. Cooperative course taught by UI (FCS 561), open to WSU students.

570 Advanced Food Technology 3 Graduate-level counterpart of FSHN 470; additional requirements. Credit not granted for both FSHN 470 and 570. Cooperative course taught by WSU, open to UI students (FST 570).

575 Supervised Practice V 2-18 May be repeated for credit; cumulative maximum 18 hours. Rec by interview only. Professional supervised experience in administrative, clinical, and community dietetics; meets American Dietetic Association requirements for registration eligibility. S, F grading.

583 Advances in Cereal Science and Technology 2 Prereq BC/BP 364. Background information, review of recent advances; relation to processing, and use properties and marketing.

587 Food and Nutrition Engineering Design 3 Same as BSysE 582.

598 Foods/Nutrition Practicum V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 4 hours. Rec by interview only. Professional-level supervised field experience in food and/or nutrition. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master's Research, and/or Examinations Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Department of Foreign Languages and Literatures

Associate Professor and Department Chair, B. B. Frederick; Associate Professors, J. T. Brown, Z. Dong, E. R. Gonzalez, J. Grenier-Winther, R. Halverson, B. M. Ingemanson, J. Labat, W. Roby, A. M. Rodriguez-Vivaldi; Assistant Professors, H. Gabriel, S. Hokanson, M. VanEpp Salazar; Visiting Professor, K. Andersen.

Knowledge of languages in addition to English is essential in the modern world of rapid communication, international business, and multinational ventures in science and technology. The Department of
Foreign Languages and Literatures attempts to help students prepare themselves for full participation in the world community by offering a wide range of classes in language, literature, and culture.

Courses are offered regularly in Chinese, Danish, Japanese, and Latin. Majors are available in French, German, Russian, and Spanish. Other languages are offered through independent study.

The department’s curriculum is structured to allow entry on any level. Students who begin language study in the public schools or at another institution may continue here at their level of competence without loss of time. Specifically, the courses in this department serve several purposes. They (1) enable students to gain proficiency in their target language and to appreciate the literature and culture of that language; (2) give language training for careers which require it; (3) provide a continuing service to students of other departments by helping them to learn to read foreign publications in their fields of interest; and (4) prepare future foreign language teachers.

Two language laboratories containing audio, visual, and computer-mediated materials are available. 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 Maison Francaise, a living group where only French is spoken and where conversational activities are supervised by a resident native speaker, is open to students of sophomore standing and above. Visiting lecturers, foreign film showings, and other cultural events supplement the classroom experience.

The department offers courses of study leading to the degrees of Bachelor of Arts in Foreign Languages and Literatures (French, German, Russian, and Spanish) and Master of Arts in Foreign Languages and Literatures (Spanish).

### Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

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

A minimum of 30-36 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 Literatures. In addition, each major must present either (1) competence in a second foreign language, up to and including 304 or the equivalent level in competence, or (2) an approved university minor or teaching minor, or a second major in another field.

No course in which a C- or lower grade is earned will be counted toward the major or minor. Upper-division courses taken pass, fail may not be included for credit toward the major. 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 advisors in the selection of a program.

Of the 30-36 hours required for the major, a minimum of 15 must be taken in residence or in an approved study abroad program. Additionally, German majors must take a minimum of 6 hours at the 400 level in residence; Spanish majors must take at least two 3-hour Spanish literature courses; and French majors at least two 3-hour French literature courses in residence.

### FRENCH DEGREE PROGRAM (120 HOURS)

Students may earn some equivalent credit in approved study abroad programs.

**Freshman Year**

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<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
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<tr>
<td>Fren 101, if necessary, or Elective¹</td>
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<tr>
<td>Fren 315, 316, or 416</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 Proficiency [N] (GER)</td>
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**Second Semester**

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<tr>
<td>Fren 102, if necessary, or Elective¹</td>
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<tr>
<td>Fren 315, 316, or 416</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Science Elective (GER)²</td>
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<td>Tier I Science [Q] (GER)²</td>
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**Sophomore Year**

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<th>First Semester</th>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
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<tr>
<td>Communication Proficiency [C,W] (GER)</td>
<td>3</td>
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<tr>
<td>Fren 203, if necessary, or Elective¹</td>
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<tr>
<td>Elective¹</td>
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**Second Semester**

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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Biological [B] Sciences (GER)</td>
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<td>Fren 304</td>
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**Junior Year**

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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Fren 307 or 407</td>
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<tr>
<td>Fren 320 [M]</td>
<td>3</td>
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<tr>
<td>Physical [P] Sciences (GER)</td>
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<tr>
<td>Elective¹</td>
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<td>Complete Writing Portfolio</td>
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**Second Semester**

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<tr>
<td>Fren 308 [M] or 408 [M]</td>
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<tr>
<td>Fren 322</td>
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<tr>
<td>Intercultural [I,G,K] (GER)</td>
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**Senior Year**

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<tr>
<td>Fren 409</td>
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<td>One from: Fren 420, 421, 422, 423, 424, 425, or 427</td>
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<td>Elective¹</td>
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**Second Semester**

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<tr>
<td>One from: Fren 420, 421, 422, 423, 424, 425, or 427</td>
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<tr>
<td>Tier III Capstone (GER)</td>
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<td>Electives¹</td>
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¹ Electives must be represented by competence in a second foreign language, up to and including 304.

### GERMAN DEGREE PROGRAM (121 HOURS)

**Freshman Year**

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<th>First Semester</th>
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<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<td>Math Proficiency [N] (GER)</td>
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<td>Ger 101, if necessary, or Elective¹</td>
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**Second Semester**

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<td>Communication Proficiency [C,W] (GER)</td>
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<td>GenEd 111 [A] (GER)</td>
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<td>Ger 102, if necessary, or Elective¹</td>
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<tr>
<td>Science Elective [B,P] (GER)²</td>
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<td>Tier I Science [Q] (GER)²</td>
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**Sophomore Year**

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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>Ger 203</td>
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<td>Ger 315</td>
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<tr>
<td>Physical [P] Sciences (GER)</td>
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**Second Semester**

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<td>Biological Sciences [B] (GER)</td>
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<td>Intercultural [I,G,K] (GER)</td>
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<td>Ger 304</td>
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<td>Ger 317</td>
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**Junior Year**

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<tr>
<td>Ger 310 [M] or 312</td>
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<td>Electives³</td>
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**Second Semester**

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<td>Ger 305</td>
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<td>Ger 310 or 312</td>
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<tr>
<td>Social Science [S,K] (GER)</td>
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**Senior Year**

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<td>Ger 320</td>
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<td>Electives³</td>
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**Second Semester**

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<td>Ger 407 or 412</td>
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<tr>
<td>Tier III Capstone (GER)</td>
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<td>Electives³</td>
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and an approved university minor or teaching minor, or a second major in another field.

1 Students may substitute one 4-credit Tier I Science for both the 3-credit Tier I Science and 1-credit Science Elective.

RUSSIAN DEGREE PROGRAM (120 HOURS)

Freshman Year

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<th>Semester</th>
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<td>Arts &amp; Humanities [H,G] (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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<tr>
<td>Science Elective [B,P] (GER)</td>
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<tr>
<td>Tier I Science [Q] (GER)</td>
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<tr>
<td>Biological [B] Sciences (GER)</td>
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<td>Communication Proficiency [C,W] (GER)</td>
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<td>Rus 102, if necessary, or Elective</td>
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Sophomore Year

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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>Rus 203</td>
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<td>Rus 317</td>
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<td>Rus 304</td>
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<td>Rus 315</td>
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<td>Rus 323</td>
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<td>Social Sciences [S,K] (GER)</td>
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Junior Year

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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>Rus 311 [M]</td>
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<td>Elective 1</td>
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<td>Complete Writing Portfolio</td>
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<td>Intercultural [I,G,K] (GER)</td>
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<td>Rus 320 [M]</td>
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Senior Year

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<tr>
<td>One from: Rus 311, 320, 424, 426, or 430</td>
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<td>Electives 3</td>
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<td>One from: Rus 311, 320, 424, 426, or 430</td>
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<td>Rus 499</td>
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<td>Electives 4</td>
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SPANISH DEGREE PROGRAM (120 HOURS)

Freshman Year

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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<td>Span 101, if necessary, or Elective 1</td>
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<td>Second Year</td>
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<td>Communication Proficiency [C,W] (GER)</td>
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<td>Science Elective [B,P] (GER)</td>
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<td>Span 102, if necessary, or Elective 1</td>
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<td>Tier I Science [Q] (GER)</td>
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Sophomore Year

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<td>Biological [B] Sciences (GER)</td>
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<td>Span 203, if necessary, or Elective</td>
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<td>Span 315 (or 316 in spring)</td>
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<td>Electives 3</td>
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<td>Physical [P] Sciences (GER)</td>
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<td>Social Sciences [S,K] (GER)</td>
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<td>Span 304</td>
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<td>Span 306</td>
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Junior Year

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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Span 307</td>
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<td>Span 308</td>
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<td>Electives 6</td>
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<td>Complete Writing Portfolio</td>
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<td>Second Year</td>
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<td>Two from: Span 311, 320, 407, 408</td>
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<tr>
<td>Electives 6</td>
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Senior Year

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<td>Spanish Literature Elective</td>
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<td>Electives 7</td>
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<td>Second Year</td>
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<td>One from: Span 424, 425, 426, 427, 434, 435, or 436.</td>
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<tr>
<td>Tier III Capstone (GER)</td>
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<tr>
<td>Electives 9</td>
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</table>

1 Electives must be represented by competence in a second foreign language, up to and including 304, and an approved university minor or teaching minor, or a second major in another field.

2 Students may substitute one 4-credit Tier I Science for both the 3-credit Tier I Science and 1-credit Science Elective.

Minimal Requirements for Each Minor

To fulfill requirements for a minor in French, German, Russian, or Spanish, a student must present a minimum of 16 hours of course work in one language area. In addition, a minimum of 9 hours beyond the 304-level is required. At least 6 of these hours must be in the target language, and at least 3 of the target language hours must be taken on a WSU campus. For a minor in German Studies, at least 30 hours must be in the target language. Upper-division courses taken pass, fail may not be included for credit toward the minor. No course may be repeated for credit toward the minor. No course may count for both the major and the minor.

Minor in Danish

The student must earn a minimum of 16 total hours in the language area, which may include credit for advanced standing or transfer credit of courses through 304. Six hours of the course work in the language area above the 304 level must be taken in residence. These 6 hours must include at least 3 credit hours in the target language. Upper-division courses (300 and above) graded pass, fail may not be included for credit toward the minor. Since advanced courses in Danish are taught under For L 300, the student is required to obtain written certification from the instructor that 6 hours of course work above the 304 level.

Minor in French Area Studies

Both options in the minor require a minimum of 23 credit hours, chosen according to the following schedule of studies.


*Students choosing Francophone Area Studies Option must take these courses.

Minor in German Area Studies

The minor in German Area Studies requires 18 hours, at least 9 of which must be 300-400-level including Ger 312, 317, Hist 468; 9 credits from: Hist 448, 449, 450, Pol S 472 (in courses covering a broader geographical area than Germany, Austria and Switzerland, the student is expected to ask the professor for a German Area Studies topic for the semester project or term paper); a student paper on German Area Studies-related topic (it may be a paper from one of the above courses) submitted to the German Area Studies faculty. (Also strongly recommended: Hist 102).

Minor in Japanese Studies

The minor in Japanese Studies requires 22 hours: Japn 101, 102, 203, 304, plus two courses from the following: Hist/Asia 374, 477; Phil/Asia 315; Pol S/Asia 436. A minimum of 4 hours of language, and 3 hours of electives must be taken at WSU.

Minor in Latin American Area Studies

The minor in Latin American Area Studies requires 20 hours, at least 8 of which are 300-400-level. Eight of the total hours must be in Spanish lan-
guage courses. Courses may be chosen from: Ag Ec 420; Anth 331, 428; CAC 151, 255, 354; CropS 360; Econ 470, 472; Hist 230, 231, 331, 430, 432, 433, 434; Pol S 413, 435; Span 323, 416, 434, 435.

Minor in Russian Area Studies
The minor in Russian Area Studies requires 20 hours, at least 8 of which must be 300–400-level.
Option 1: Russia through the 19th Century; Hist 462; Rus 101, 102, 315. Option 2: Russia in the 20th Century: Hist 463; Rus 101, 102, 317. Both options require two additional courses from: Econ 416, Hist 465, Pol S 102, 333, Rus 323. The required courses in the option not chosen may also serve as electives. Except for Rus 101 and 102, all courses are taught in English.

Minor in Scandinavian Area Studies
The minor in Scandinavian Area Studies requires 20 hours, at least 8 of which are 300–400-level including Hist 348; For L 300, Scand 101, 102, 323, 400, 499; Soc 391. Students may apply up to 10 hours of approved study abroad course work toward the minor.

INTERNATIONAL BUSINESS OPTION
The international business area studies curriculum combines a major in foreign languages with core courses in business. Complete details are available from the department. Through careful choice of electives and of courses meeting General Education Requirements, a student may obtain sufficient concentration to prepare for graduate study in several fields or to enhance a wide variety of career possibilities.

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.

Preparation for Graduate Study
Students who contemplate graduate work in the Department of Foreign Languages and Literatures should present an undergraduate degree similar to those described in the above schedule of studies. Complete details on graduate programs are available from the chair of the department.

Description of Courses

Foreign Languages and Literatures
For L
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. Cooperative course taught by WSU, open to UI students (FL 300).
315 Topics in Canadian Studies 1 May be repeated for credit; cumulative maximum 5 hours. Same as Hist 315.
340 Methods of Teaching Foreign Languages 3 Prereq two years foreign language. Survey of current methodology with emphasis on practical application in the classroom.

341 Practicum in CAI for the Foreign Language Classroom 1 May be repeated for credit; cumulative maximum 3 hours. Prereq 304-level foreign language course; Rec For L 340. Practicum in Computer-Assisted Instruction (CAI) in foreign language classes, to train students working toward a career in second language instruction.

350 [S] Speech, Thought, and Culture 3 Same as Anth 350.

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.

422 [T] 20th-Century Issues in German and Latin American Film and Literature 3 Prereq completion of one Tier I and three Tier II courses in appropriate area of coherence. Comparison of film adaptations with their literary inspirations to give students an understanding of how cultures respond to contemporary conditions.

444 Instructional Technology for Foreign Language Learning 3 Prereq For L 340. The use of technology in the foreign language classroom; hands-on experience with equipment and multi-media materials. Credit not granted for both For L 444 and 544.

450 Descriptive Linguistics 3 Same as Anth 450.

474 Secondary School Foreign Language Methods 3 Prereq two years foreign language. Specific methods, research, curricula, and media in teaching secondary school foreign language. Cooperative course taught by UI (Ed 474), open to WSU students.

495 Cooperative Education Internship V 2–6 May be repeated for credit; cumulative maximum 6 hours. Off-campus cooperative education internship with business, industry, or government unit. S, F grading.

499 Special Problems V 1–4 May be repeated for credit. S, F grading.

544 Instructional Technology for Foreign Language Learning 3 Prereq For L 444, additional requirements. Credit not granted for both For L 444 and 544.

597 Seminar in Scholarly Methodology 2 Bibliography and formal aspects of scholarly writing; general introduction to literary criticism.

600 Special Projects or Independent Study 3 Variable credit. S, F grading.

Chinese

Chin
101 First Semester 4 Fundamentals of speaking, reading, and writing. Cooperative course taught by WSU, open to UI students (Chin 101).1
102 Second Semester 4 Prereq Chin 101. Continuation of Chin 101. Cooperative course taught by WSU, open to UI students (Chin 102).2
303 Third Semester 4 Prereq Chin 102. Chinese literature through reading of selected masterpieces. Chinese used as medium of communication.

Clases

101 Beginning Latin 4 For students who have had no Latin or who need a review course before taking advanced work.
102 Selections from Latin Prose and Poetry 4 Prereq Clas 101.

Elementary Greek 4 Pronunciation, vocabulary, reading, and functional grammar. Cooperative course taught by UI (Grek 341), open to WSU students.

Elementary Greek 4 Pronunciation, vocabulary, reading, and functional grammar. Cooperative course taught by UI (Grek 342), open to WSU students.

Greek Language Lab 1 May be repeated for credit; cumulative maximum 2 hours. Basic skills. S, F grading. Cooperative course taught by UI (Grek 349), open to WSU students.

Survey of Latin Literature 3 From early Latin to the Middle Ages. Cooperative course taught by UI (Latn 365), open to WSU students.

Survey of Latin Literature 3 From early Latin to the Middle Ages. Cooperative course taught by UI (Latn 366), open to WSU students.

Latin Language Lab 1 May be repeated for credit; cumulative maximum 2 hours. Prereq permission. Advanced-level expressive skills. S, F grading. Cooperative course taught by UI (Latn 369), open to WSU students.

Special Topics 1 May be repeated for credit; cumulative maximum 3 hours. Cooperative course taught by UI (Latn 404), open to WSU students.

Intermediate Greek 4 Readings in classical Greek prose and poetry. Cooperative course taught by UI (Grek 441), open to WSU students.

Intermediate Greek 4 Readings in classical Greek prose and poetry. Cooperative course taught by UI (Latn 442), open to WSU students.

Latin Literature of the Augustan Age 3 Cooperative course taught by UI (Latn 461), open to WSU students.

Latin Literature of the Augustan Age 3 Cooperative course taught by UI (Latn 462), open to WSU students.

Latin Literature of the Republic 3 Cooperative course taught by UI (Latn 463), open to WSU students.

Latin Literature of the Republic 3 Cooperative course taught by UI (Latn 464), open to WSU students.

Latin Literature of the Silver Age 3 Cooperative course taught by UI (FL/LA 465), open to WSU students.

Latin Literature of the Silver Age 3 Cooperative course taught by UI (FL/LA 466), open to WSU students.

French

Fren
101 First Semester 4 Fundamentals of speaking, reading, and writing. Credit not granted for Fren 101, 102, and 104.
102 Second Semester 4 Prereq Fren 101. Continued development of basic skills in speaking, reading, and writing. Credit not granted for Fren 101, 102, and 104.1

1Not open to native speakers except with permission. Bilingual speakers should consult departmental guidelines for proper placement.

Department of Foreign Languages and Literatures
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. Credit not granted for Fren 101, 102 and 104.1

203 Third Semester 4 Prereq Fren 102. Grammar review and further development of speaking, reading, and writing skills.1

304 Intermediate 4 Prereq Fren 203. Continued practice in spoken and written language; selected texts in a cultural context.1

305 Conversation 1 (0-3) May be repeated for credit; cumulative maximum 4 hours. Prereq Fren 304. Conversation practice in small groups.1

306 French for Reading Proficiency 2 Prereq Fren 304. Vocabulary building, contrastive English-French grammar, development of skills to increase reading speed and fluency.

307 Speaking Proficiency 3 Prereq Fren 304. Systematic development of speaking.1

308 [M] Composition 3 Prereq Fren 304. Systematic practice in writing.2

310 French for the Professions 3 Prereq Fren 304. Communication in French for professional purposes; telephone and meeting role-plays, letter-writing, television, discussions of current events in the Francophone world.

315 [H] French Civilization and Culture 3 Cultural history of France from beginnings to present; comparison of French and American cultures; taught in English.

316 [I] French Civilization and the Francophone World 3 Study of relationship between France and its former colonies from a global perspective; complements Fren 315; readings, lectures, and discussions in English.

318 Topics in French Civilization—Study Abroad 3

320 [H] [M] Survey of French Literature to 1700 3 Prereq Fren 304. Works studied from the Middle Ages and Renaissance include the epic poem, courtly romance, fabliau, drama, and lyric poetry.

322 [H] [M] Survey of French Literature After 1700 3 Prereq Fren 304. Development of reading competence and written expression through study of great works of these times.

327 Special Topics—Study Abroad 3

407 Advanced Practice in Speaking Proficiency 3 Prereq Fren 307. Systematic development of oral skills on the advanced level, including delivery of brief formal presentations involving specialized vocabulary.1


409 Pronunciation and Phonetics 2 Prereq Fren 307 or 308. A theoretical and practical approach to French phonetics.

416 Seminar in French Civilization 3 Prereq Fren 307, 308, 320 or 322. May be repeated for credit; cumulative maximum 6 hours.

418 Topics in French Civilization—Study Abroad V 1-4

420 Medieval French Literature 3 Prereq Fren 320 or 322. In-depth study of selected works by medieval authors, including, among others, Chrétién de Troyes, Marie de France, François Villon.

421 French Literature of the Renaissance 3 Prereq Fren 320 or 322. In-depth study of selected works from the late 14th through the 16th centuries, including poetry, essays, stories, and philosophical texts.

422 Literature of the Classical Period 3 Prereq Fren 320 or 322. Authors and works from the 17th century, including Corneille, Racine, and Molière.

423 Literature of the Enlightenment 3 Prereq Fren 320 or 322. Authors and works from the 18th century, including Montesquieu, Voltaire, Diderot, and Rousseau.

424 French Literature of the 19th Century 3 Prereq Fren 320 or 322. Authors and works from the Romantic, Realist, Naturalist, and Symbolist Schools.

425 French Literature of the 20th Century 3 Prereq Fren 320 or 322. Authors and works from the pre-WWI, pre-WWII, post-war, and contemporary periods.

427 Seminar in French Language or Literature 3 May be repeated for credit. Prereq Fren 320 or 322.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

German

101 First Semester 4 Fundamentals of speaking, reading, and writing.1

102 Second Semester 4 Prereq Ger 101. Continued development of basic skills in speaking, reading, and writing.1

203 Third Semester—Study Abroad V 3-6 Prereq Ger 102. Development of speaking, reading, and writing skills. Credit not granted for Fren 203. In-depth study of selected works from the late 14th through the 16th centuries, including poetry, essays, stories, and philosophical texts.1

3 Intermediate 4 Prereq Ger 203. Continued practice in spoken and written language; selected texts in a cultural context.1

305 Conversation 1 (0-3) May be repeated for credit; cumulative maximum 4 hours. Prereq Ger 304. Conversation practice in small groups.1

310 German for Professionals 3 Prereq Ger 304. Applied language skills useful in a professional or business environment.

312 Composition and Conversation 3 Prereq Ger 304. Development of proficiency in speaking and writing skills; emphasis on fluency and accuracy.1

315 [H] Germanic Civilization 3 The cultural development of the Germanic peoples to 1750; readings, lectures, and discussions in English.

317 [S] Contemporary German Culture and Society 3 Lectures, readings, and discussions in English; current social, political, economic, and cultural trends in Germany.

318 Topics in German Civilization Study Abroad 3 (Cologne)

320 [M] Introduction to German Literature 3 Prereq Ger 304. Reading in context; modern German prose.

407 Advanced Practice in Speaking Proficiency 3 Prereq Ger 310 or 312. Development of speaking skills in German to an advanced level.

412 [M] Advanced Composition and Conversation 3 Prereq Ger 312. Continued development of proficiency speaking and writing skills; emphasis on fluency and accuracy.1

422 [M] German Literature of the Enlightenment and Sturm und Drang 3 Prereq Ger 320 or 322. The works of Lessing, young Goethe, young Schiller, and others.

423 [M] German Literature of the Classical Periods 3 Prereq Ger 320 or 322. Dramatic, lyric, and prose texts by Goethe, Schiller and others in the period 1780 - 1800.

424 [M] German Literature of the Early 19th Century 3 Prereq Ger 320 or 322. Dramatic, lyric and prose texts of the Romantics, Junges Deutschland and the early Realists.

425 [M] German Literature of the Late 19th Century 3 Prereq Ger 320 or 322. Dramatic, lyric and prose texts of the Realists and the Naturalists.

426 [M] German Literature of the Early 20th Century 3 Prereq Ger 320 or 322. Dramatic, lyric and prose texts of the Impressionists, Expressionists, and Dadaists.

427 Seminar in German Language or Literatures 3 May be repeated for credit. Prereq Ger 320 or 322.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Italian

101 First Semester—Study Abroad V 3-6 Introductory Italian. (Siena)1

102 Second Semester—Study Abroad V 3-6 Prereq Ital 101. Continuation of Ital 101. (Siena).1

203 Third Semester—Study Abroad V 3-6 Prereq Ital 102. Continuation of Ital 102; grammar review, further development of speaking, reading, and writing skills. (Siena).1

318 Topics—Study Abroad 3 May be repeated for credit; cumulative maximum 6 hours. (Siena).

Japanese

101 First Semester 4 Fundamentals of speaking, reading, and writing. Cooperative course taught by WSU, open to UI students (Japn 101).1

102 Second Semester 4 Prereq Japn 101. Continuation of Japn 101. Cooperative course taught by WSU, open to UI students (Japn 102).1

303 Third Semester 4 Prereq Japn 102 Conversation and reading of selected texts. Cooperative course taught by WSU, open to UI students (Japn 201).1

304 Intermediate 4 Prereq Japn 303. Continued practice in spoken and written language; selected texts in a cultural context. Cooperative course taught by WSU, open to UI students (Japn 202).1

318 Topics in Japanese—Study Abroad 12 Prereq Japn 303. Equivalent to fourth and fifth semesters of language study plus 4 credits of culture study (Tokyo).

Russian

101 First Semester 4 Fundamentals of speaking, reading, and writing. Credit not granted for both Rus 101 and 102 and for 105 and 106. Cooperative course taught by WSU, open to UI students (Russ 101).1

1Not open to native speakers except with permission. Bilingual speakers should consult departmental guidelines for proper placement.
102 Second Semester 4  Prereq Rus 101. Continued development of basic skills in speaking, reading, and writing. Credit not granted for both Rus 101 and 102 and for 106. Cooperative course taught by WSU, open to UI students (Russ 102). 1


203 Third Semester 4 Prereq Rus 102. Grammar review and further development of speaking, reading, and writing skills. Cooperative course taught by WSU, open to UI students (Russ 203). 1

304 Intermediate 4 Prereq Rus 203. Continued practice in spoken and written language; selected texts in a cultural context. Cooperative course taught by WSU, open to UI students (Russ 304). 1

305 Conversation 1 (0-3) May be repeated for credit; cumulative maximum 4 hours. Prereq Rus 304. Conversation practice in small groups. Cooperative course taught by WSU, open to UI students (Russ 305). 1


311 [M] Seminar in Russian Language 3 Prereq Rus 304. May be repeated for credit, cumulative maximum 6 hours. Application and elaboration of the basic syntactic and stylistic principles of the language. Taught in Russian.

315 Russian Civilization 3 Russian culture to 1917; readings, lectures, and discussions in English.

317 [G] Contemporary Russian Culture and Society 3 Readings, lectures, and discussions in English; current cultural and social trends in the former USSR.

318 Topics in Russian Study Abroad 4 Prereq Rus 304. (Vladivostok).

320 [M] Topics in Russian Literature 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Rus 304. Reading course shifting emphasis from language to literature.

323 [H] Masterpieces of Russian Literature in Translation 3 The masterpieces of the great Russian and Soviet writers of the 19th and 20th centuries. Taught in English.

424 Seminar in Russian Literature  Prereq Rus 320. Selected works from the 19th century. Taught in Russian.

425 Seminar in Russian Literature 3 Prereq Rus 311 or 320. Advanced practice in reading Russian stories and poems, discussing them, and examining their reflection of Russian life.


430 [H] St. Petersburg 3 Prereq completion of one Tier I and three Tier II courses in appropriate area of coherence. The image and role of St. Petersburg in Russian and world classics in literature, art, music, and film.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Scandinavian

101 First Semester Danish 4 Introduction to Danish; fundamentals of speaking, reading, and writing. 1

102 Second Semester Danish 4 Prereq Scand 101. Intermediate Danish; continued development of the basic communicative skills in speaking, reading, and writing. 1
General Education Courses

Description of Courses

General Education

GenEd

104 Freshman Seminar 2 Introduction to college disciplinary and interdisciplinary discourse and to academic culture, including its values, procedures, and techniques. Credit not granted for more than one of GenEd 104, 105, U H 105.

105 Residential Freshman Seminar 2 Prereq residency in participating university-approved housing. Introduction to college disciplinary and interdisciplinary discourse and to academic culture, including its values, procedures, and techniques. Credit not granted for more than one of GenEd 104, 105, U H 105.

110 [A] World Civilizations I 3 Integrated study of social, political, and philosophical/religious systems in early civilizations, with an introduction to distinctive art forms.

111 [A] World Civilizations II 3 Integrated study of social, political, and philosophical religious systems in modern civilizations, with an introduction to distinctive art forms of the major world civilizations.

200 [I] Studying World Civilizations Abroad V 1-3 May be repeated for credit; cumulative maximum 3 hours. Prereq GenEd 110 or 111 or c//. Study-abroad experience for general education students to introduce them to the cultures they have studied in GenEd 110 and/or 111.

302 Advanced Writing Tutorial V 1(0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 5 hours. Prereq permission of Writing Lab Director/Writing Assessment Coordinator. Assigned tutorials in the WSU Writing Lab. S, F grading.

General Studies Program

General studies is for students who have varied interests that may cut across the usual departmental boundaries and who wish to play a major role in deciding on a suitable curriculum of study. The student earns a Bachelor of Arts in Humanities, Bachelor of Arts in Social Sciences, Bachelor of Science, or Bachelor of Liberal Arts degree depending upon the program selected. The degree is not suitable for those who wish to teach Latin or Greek or enter graduate school in classics unless additional language study is undertaken. It is not suitable for those who wish to teach Latin or Greek or enter graduate school in classics unless additional language study is undertaken. The approach is interdisciplinary and flexible to allow students to pursue varied interests within a broad field. Students who major in classical studies will earn a Bachelor of Arts in Humanities degree.

GENERAL STUDIES CLASSIC STUDIES DEGREE PROGRAM (120 HOURS)

Each student must complete (1) the General Education Requirements and any additional requirements of the College of Sciences and Arts, (2) 120 semester hours which include 40 or more at the 300-400 level, (3) a second year (or its equivalent) of Greek or Latin language, which may be completed at the University of Idaho.

Freshman Year

First Semester

Hours

Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math Proficiency [N] (GER) 3
Science Elective1 1
Tier I Science [Q] (GER) 3

Second Semester

Hours

Biological Sciences [B] (GER) 4
Clas 101 or 341 4
Communication Proficiency [C,W] (GER) 3
FA 201 [H] (GER) 3
GenEd 111 [A] (GER) 3

Sophomore Year

First Semester

Hours

Clas Language Elective1 4
Hum 101 [H] (GER) 3
Physical Sciences [P] (GER) 4
Social Sciences [S,K] (GER) 3

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 including at least 9 credits in each department or program and 21 300-400-level hours must be completed with at least a 2.0 g.p.a. 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 major concentration in general biological sciences (Gen B).

Plan C—Three Related Areas in Physical Sciences

A combination of physical sciences and mathematics courses of at least 39 credits in three or more departments or programs including at least 9 credits in each department or program and 21 300-400-level hours must be completed with at least 2.0 g.p.a. in these courses. The related areas in mathematical and physical sciences include chemistry, computer science, geology, mathematics, pharmacy, physics, and math/science-based engineering courses. Students who complete a Plan C curriculum receive a Bachelor of Science degree with a major concentration in general physical sciences (Gen P).

Prerequisite Courses

General Biological Sciences (Gen B): One year biology, one semester introductory calculus, one year general chemistry, and one semester organic chemistry.

General Physical Sciences (Gen P): One year calculus, one year calculus-based physics, and one year general chemistry. (Students who plan a major concentration in chemistry should also include quantitative and organic chemistry. Physical geology is a prerequisite for 300-400-level geology courses.)

General Mathematics (Gen M): Three semesters of calculus and linear algebra.

Classical Studies

R. S. Williams, Coordinator

The classical studies option is designed for students who wish to obtain a broad understanding of the ancient Greek and Roman foundation of modern western civilization. Greek and Latin language study is an important part of the program in order to aid comprehension of classical thought, literature, and history. This major should be of great value for students contemplating careers in medicine, law, and business or graduate work in history, archaeology, or literature. It is not suitable for those who wish to teach Latin or Greek or enter graduate school in classics unless additional language study is undertaken. The approach is interdisciplinary and flexible to allow students to pursue varied interests within a broad field. Students who major in classical studies will earn a Bachelor of Arts in Humanities degree.

Description of Course

General Studies

GenSt

400 General Studies Portfolio 1 Prereq senior standing. Evaluating one’s educational experience and presenting that evaluation in written form. S, F grading.

Biological, Mathematical, and Physical Sciences

B. Lentz, Coordinator

This division of general studies is for students who are interested in interdisciplinary programs in science which offer broader options in course selections than are possible within single departments. Students who wish to earn a Bachelor of Science degree will devise an approved, coherent program of study with the coordinator which fulfills an academic or career goal and includes prerequisites consistent with the 300-400-level major course work. In addition, each student will satisfy the General Education Requirements and any additional requirements of the College of Sciences.

Plan A—Major/Minor Concentration

Major 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 major concentration g.p.a. Students who complete one of the above major concentrations will receive a Bachelor of Science degree with a major concentration in general biological sciences (Gen B), general mathematics (Gen M) or general physical sciences (Gen P).

Minor 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 g.p.a.

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 including at least 9 credits in each department or program and 21 300-400-level hours must be completed with at least a 2.0 g.p.a. 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 major concentration in general biological sciences (Gen B).

Plan C—Three Related Areas in Physical Sciences

A combination of physical sciences and mathematics courses of at least 39 credits in three or more departments or programs including at least 9 credits in each department or program and 21 300-400-level hours must be completed with at least 2.0 g.p.a. in these courses. The related areas in mathematical and physical sciences include chemistry, computer science, geology, mathematics, pharmacy, physics, and math/science-based engineering courses. Students who complete a Plan C curriculum receive a Bachelor of Science degree with a major concentration in general physical sciences (Gen P).
Second Semester  Hours
Clas Language Elective 1 4
Hist 341 [H] (GER) 3
Hum 103 [H] (GER) 3
Phil 290 [H] (GER) 3
Approved 300-400-level Elective 1 3

Junior Year
First Semester  Hours
Clas Language Elective 1 4
Hist 340 [H] (GER) 3
Approved 300-400-level Elective 1 3
300-400-level Electives 6
Complete Writing Portfolio

Second Semester  Hours
Intercultural [I,G,K] (GER) 3
Approved 300-400-level Electives 1 6
300-400-level Electives 6

Senior Year
First Semester  Hours
Approved 300-400-level Electives 1 6
300-400-level Electives 6
Electives 3

Second Semester  Hours
Tier III Capstone (GER) 3
Electives 11

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1 Students may substitute one 4-credit Tier I Science for both the 3-credit Tier I Science and 1-credit Science Elective.
2 Students must complete a second year (or its equivalent) of Greek or Latin language, which may be completed at the University of Idaho.

Additional Greek and Latin beyond the basic language requirements, appropriate seminars, special offerings, and independent study from associated departments must be selected with the approval of the coordinator of the classical studies option.

MINOR. Students wishing to minor in classical studies are required to take a minimum of 16 hours of course work, at least 8 of which are at the 300-level and above. Students are encouraged, but not required, to take a classical language.

Humanities and Social Sciences

B. Lentz, Coordinator

This division of general studies is for students whose primary interest in the humanities or social sciences requires interdisciplinary programs and course selections which are not possible within single academic programs 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 with the coordinator which fulfills an academic or career goal and includes prerequisites consistent with the 300-400-level major course work. In addition, each student will satisfy the General Education Requirements and any additional requirements of the College of Liberal Arts.

Plan A—Major/Minor Concentration

Major 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 major concentration g.p.a. The major (Gen H or Gen S) and the degree will depend on the major concentration.

Minor 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 g.p.a.

Plan B—Three Related Areas in Humanities

A combination of humanities courses of at least 39 credits involving three or more academic departments or programs, with a minimum of 9 credits in each of the three areas including at least 21 300-400-level credits with at least a 2.00 g.p.a. in these courses. Students will major in general humanities (Gen H) and will receive a Bachelor of Arts in Humanities.

Plan C—Three Related Areas in Social Sciences

A combination of social sciences courses of at least 39 credits involving three or more academic departments or programs, with a minimum of 9 credits in each of the three areas including at least 21 300-400-level credits with at least a 2.0 g.p.a. in these courses. Students will major in general social sciences (Gen S) and will receive a Bachelor of Arts in Social Sciences.

Liberal Arts

J. Dollhausen, Coordinator

This option is available to students who have interests and motivations which go beyond the defined departmental boundaries. A student who chooses this option designs a major in consultation with the coordinator and two other faculty members. Students who major in liberal arts will earn the Bachelor of Liberal Arts degree.

The course of study will be outlined by the student, with the advice and assistance of the coordinator. Course work will be selected to provide a coherent body of knowledge culminating in a relevant thesis or senior project. As part of the requirement for completion of the degree, the student’s committee will meet to discuss and evaluate the project. All General Education Requirements of the university and the College of Sciences and Arts must be met, as described in the academic regulations.

A student may select the option upon completion of 30 or more semester hours, with the approval of the coordinator. Approval will be granted to those students who demonstrate a sincere motivation to accomplish in their unique course of study. Requests for the option are made in an informal interview with the coordinator. Normally, upon acceptance to the option, students should anticipate at least two semesters of course work before graduation.

Linguistics

L. Gordon, Coordinator

A student majoring in linguistics may expect a broad liberal education in literature, anthropology, mathematics, and philosophy around a core of language. The student will gain a substantial familiarity with several languages and types of linguistic structure and will become conversant with the formal theories of linguistic analysis and the historical study of language. Students who major in linguistics will earn a Bachelor of Arts in Humanities degree.

The major in linguistics requires 40 credit hours, variously distributed in the following sequence, depending upon the particular emphasis which the student and advisor together select.

GENERAL STUDIES LINGUISTICS DEGREE PROGRAM (120 HOURS)

Freshman Year

First Semester  Hours
Engl 101 (W) (GER) 3
GenEd 110 (A) (GER) 3
Math Proficiency [N] (GER) 3
Science Elective 1 1
Tier I Science [Q] (GER) 3

Second Semester  Hours
Arts & Humanities [H,G] (GER) 3
Biological Sciences [B] (GER) 4
Communication Proficiency [C,W] (GER) 3
GenEd 111 (A) (GER) 3
Linguistics Elective 2 3

Sophomore Year

First Semester  Hours
Linguistics Elective 2 3
Math, Cpt S, or Stat Elective 3
Physical Sciences [P] (GER) 4
Social Sciences [S,K] (GER) 3
Elective 3

Second Semester  Hours
Arts & Humanities [H,G] (GER) 3
Linguistics Elective 2 3
Phil Elective 4 3
Elective 3

Junior Year

First Semester  Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Linguistics Elective 2 3
300-level Foreign Language Elective 3
Emphasis Elective 3 3
Elective 3

Second Semester  Hours
Intercultural [I,G,K] (GER) 3
Linguistics Elective 2 3
300-level Foreign Language Elective 3
Emphasis Elective 3 3
Elective 3

Senior Year

First Semester  Hours
Linguistics Elective 2 3
300-400-level Electives 12

Second Semester  Hours
Tier III Capstone (GER) 3
300-400-level Electives 12

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1 Students may substitute one 4-credit Tier I Science for both the three-credit Tier I Science and one-credit Science Elective.
2 Students must take 21 hours or more, including at least one historical course: Anth 250, 350, 450, 456, 499; Engl 256, 354, 458, 499.
3 Students must take 3-12 hours depending upon special emphasis: Cpt S 150, 260, 405; Math 107, 171, 172, 201, 202; Stat 360.
Students must take 3-12 hours depending upon emphasis: Phil 201, 320, 401, 410.

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 from the courses listed in the above footnote to meet the required 40 credit hours.

Religious Studies

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 requirements 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.

GENERAL STUDIES RELIGIOUS STUDIES DEGREE PROGRAM (120 HOURS)

Freshman Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>For L Elective</td>
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</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</td>
<td>1</td>
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<tr>
<td>Tier I Science [Q] (GER)</td>
<td>3</td>
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Second Semester

<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>For L Elective</td>
<td>4</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
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</tbody>
</table>

Sophomore Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anth 303</td>
<td>3</td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>For L Elective</td>
<td>4</td>
</tr>
<tr>
<td>Physical Sciences [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

Department of Genetics and Cell Biology


The Department of Genetics and Cell Biology offers graduate study and research programs leading to the degrees of Master of Science and Doctor of Philosophy (Genetics and Cell Biology) under the College of Sciences.

In addition to the above, the department offers a study program leading to the degree of Bachelor of Science in Genetics and Cell Biology. There are two options under this degree. Option 1: Applied Genetics and Cell Biology with a focus on either plant or animal biotechnology. This option is offered through the College of Agriculture and Home Economics, of which Genetics and Cell Biology is also a member; and option 2: Molecular Genetics and Cell Biotechnology, offered under the College of Sciences.

JUNIOR & SENIOR YEAR—CHOOSE ONE OF THE OPTIONS LISTED BELOW


Comparative Religions: Engl 335, Hist 273, Phil 314, 315, 407; six courses from: Anth 330; Hist 270, 275, 308, 370, 373, 374, 390, 408; Hum 103.

1 Students may substitute one 4-credit Tier I Science Elective for both the 3-credit Tier I Science and 1-credit Science Elective.

Teacher-Training

Students who are preparing to teach at the secondary level may in some cases receive their degrees in general studies. Such students must fulfill the requirements for graduation of the College of Sciences or College of Liberal Arts. There are no further requirements if they complete their teaching major and minor and fulfill all the requirements for teaching certification. The degree awarded is Bachelor of Arts in Humanities, Bachelor of Arts in Social Sciences, or Bachelor of Science according to the endorsement granted in the student’s major teaching field.

There is a strong emphasis on the importance of critical thinking and problem-solving skills. Students are encouraged to develop their skills in these areas and to apply them in various contexts. The program also provides opportunities for hands-on learning and experiential education, allowing students to gain practical skills and knowledge through real-world experiences.

Several faculty are working together on the basic biology of gene transfer with the intention of improving domesticated plants and animals.

The interdisciplinary role of genetics and cell biology is emphasized, thus permitting students to study with scientists who represent a wide range of research interests in plant, animal, and microbial genetics. Many of the faculty research interests have a major cellular orientation, and extensive training in cell biology as well as more strictly genetic areas is available within the department.

The Department of Genetics and Cell Biology, being an interdepartmental organization, enjoys the availability of many and highly diverse facilities for research. Faculty laboratories are well equipped with modern equipment, especially in the recombinant DNA area, molecular genetics, and cell biology.

Biochemistry, cytokology, mathematics, statistics, physiology, and computer-based analysis procedures are the principal avenues through which knowledge of genetics and cell biology is acquired. These subjects are necessary supplemental areas of study for students in the department.

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 some cases in specialized medical research.

Students who receive a Bachelor of Science in Ge-
APPLIED GENETICS AND CELL BIOLOGY

College of Agriculture and Home Economics with a focus on either plant or animal biotechnology.

Freshman Year

First Semester
- Bio S 103 [B] (GER) 4
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Math 107 3

Second Semester
- Ag Ec 201 [S] (GER) 3
- Bio S 104 [B] (GER) 4
- Chem 106 [P] (GER) 4
- GenEd 111 [A] (GER) 3
- Math 108 2

Sophomore Year

First Semester
- Chem 240; or Chem 340, 341, 342 4-8
- GenCB 301 4
- Math 140 [N] or 171 [N] (GER) 4

Second Semester
- Arts & Humanities [H,G] (GER) 3
- BC/BP 364 4
- Communication Proficiency [C,W] (GER) 3
- Micro 301 4
- Soc 331 [S] (GER) or Soc 430 [K] (GER) 3

Junior Year

First Semester
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- One from: GenCB 462, 502 2 or 3
- Phys 101 [P] (GER) 4
- Two from: BC/BP 366, GenCB 402, 452, Micro 464 3-6
- Complete Writing Portfolio

Second Semester
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Degree Program Course 3 or 4

Senior Year

First Semester
- Degree Program Courses 9-12
- Intercultural [L,G,K] (GER) 3
- Electives 3

Second Semester
- Degree Program Courses 3 or 4
- GenCB 498 [M] 2
- Tier III Capstone (GER) 3
- Electives 10

MOLECULAR GENETICS AND CELL BIO TECHNOLOGY DEGREE PROGRAM (120 HOURS)

College of Sciences

Freshman Year

First Semester
- Bio S 103 [B] (GER) 4
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

Second Semester
- Bio S 104 [B] (GER) 4
- Chem 106 [P] (GER) 4
- GenEd 111 [A] (GER) 3
- Math 140 [N] or 171 [N] (GER) 4

Sophomore Year

First Semester
- Arts & Humanities [H,G] (GER) 3
- Chem 240; or 340, 341, 342 4-8
- Communication Proficiency [C,W] (GER) 3
- Phys 101 [P] or 201 [P] (GER) 4

Second Semester
- BC/BP 364 4
- GenCB 301 4
- Phys 102 [P] or 202 [P] (GER) 4
- Social Sciences [S,K] (GER) 3

Junior Year

First Semester
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- One from: GenCB 325, 488 [M] 3
- Math 172, Stat 212 [N] (GER), or 412 3 or 4
- Complete Writing Portfolio

Second Semester
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Advanced GenCB Courses 9
- Intercultural [L,G,K] (GER) 3
- Electives 3 or 4

Senior Year

First Semester
- GenCB 320 2
- Laboratory Courses 6
- Electives 9

Second Semester
- Biological Science Electives 6
- GenCB 450 3
- Tier III Capstone (GER) 3
- Electives 3-5

Minor in Pre-Genetic Counseling


Minor in Molecular Biology

Students who complete the following courses may receive a Molecular Biology minor: BC/BP 364, GenCB 301, 450, Micro 301; BC/BP 366, GenCB 402, or Micro 464; BC/BP 463, GenCB 502, or Micro 462.

Description of Courses

Genetics andCell Biology

GenCB

150 [Q] Genetics and Society 3 (2-3) Genetics as it relates to current issues; history of genetics, genetic engineering, medical, agricultural, and population genetics and ecology. 301 General Genetics 4 Prereq Bio S 104; two semesters Chem. Principles of modern and classical genetics. 312 [M] Cell and Molecular Laboratory 2 (0-6) Prereq BC/BP 364, GenCB 301, or c/fl; one semester organic chemistry. Laboratory methods in cell biology, genetics and molecular biology. 325 Plant Biotechnology 3 Same as Bot 325. 402 [M] General Genetics Laboratory 3 (1-6) Prereq GenCB 301. Basic principles of modern and classical genetics utilizing several species. 405 Genetic and Molecular Aspects of Plant Reproduction 2 or 3 Same as Hort 405/505. Credit not granted for both GenCB 405 and 505. 420 Fundamentals of Molecular Genetics 3 Prereq BC/BP 364, GenCB 301. Genetics and molecular biology emphasizing eukaryotic topics and including prokaryotic techniques. 430 Human Genetics 3 Prereq GenCB 301. Exploration of individual and population genetics leading to critical discussion of current social, medical, and scientific issues.
535 Molecular Genetics of Plant and Pathogen Interactions 2 Same as PI 535.

536 Plant Genetic Engineering Laboratory 2 (0-6) Same as CropS 536.

550 Cell Biology 3 Prereq BC/BP 364; GenCB 301. Cell structure and movement, organelle structure and function, and cell signal processing. Cooperative course taught by WSU, open to UI students (Genet/PISC 550).

556 Cell Biotechnology V 1-3 Prereq BC/BP 364; GenCB 450. Contemporary cell biotechnology; techniques including: cell culture, immunology (including preparation and use of monoclonal antibodies), nucleic acid hybridization (including in situ).

560 Molecular Genetics 3 Prereq BC/BP 563; GenCB 301, 502, or Micro 301. Biochemical description of genetic processes in microorganisms.

565 Molecular Biology I 3 Same as BC/BP 565.

566 Molecular Biology II 3 Prereq BC/BP 565; GenCB 301. Gene regulation in prokaryotes and eukaryotes; chromatin structure; DNA repair; RNA processing.

569 Research Proposal 1 May be repeated for credit; cumulative maximum 2 hours. Written and oral presentation of a research paper.

570 Plant Molecular Genetics 3 Prereq GenCB 502. Plant molecular genetics with emphasis on systems specific to plants and plant genetic engineering. Cooperative course taught by WSU, open to UI students (Genet 570/PISC 571).

572 Fundamentals of Oncology 3 Same as P/T 572.

573 Cellular and Molecular Aspects of Development 3 Same as ZoL 573.

576 Molecular Biology Techniques I 1 (0-3) Same as BC/BP 576.

577 Molecular Biology Techniques II 1 (0-3) Same as BC/PP 577.

581 Advanced Topics in Genetics V 1-2 May be repeated for credit. Prereq GenCB 502 or 511. Recent research in selected areas of genetics.

588 Perspectives in Biotechnology 3 Graduate-level counterpart of GenCB 488; additional requirements. Credit not granted for both GenCB 488 and 588.

592 Advanced Topics in Cell Biology V 1-3 May be repeated for credit; cumulative maximum 7 hours. Current research in cell structure and function. Cooperative course taught by WSU, open to UI students (Genet/PISC 592).

598 Seminar 2 May be repeated for credit. Prereq GenCB 301. Reviews of recent and classical research in genetics and cell biology.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

701 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Degree Program Requirements
Honors students complete Honors Requirements in place of General Education Requirements.

Candidates for a B.S. degree in geology follow the curriculum outlined below. A minimum of 120 semester hours of credit is required for graduation, including a minimum of 40 semester hours of credit in 300-400-level course work with a 2.0 minimum g.p.a. overall and in the major.

GEOLOGY DEGREE PROGRAM (131 HOURS)

First Semester Hours
Chem 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Geol 101 [P] or 102 [P] (GER) 4
Math 107, if necessary 4

Second Semester Hours
Arts & Humanities [H,G] (GER) 3
Chem 106 [P] (GER) 4
GenEd 111 [A] (GER) 3
Geol 206 3
Math 171 [N] (GER) 4

Sophomore Year Hours
First Semester
Geol 210 [P] (GER) 3

Second Semester
Biological Sciences [B] (GER) 4
Communication Proficiency [C,W] (GER) 3
Description of Courses

Geology

101 [P] Introduction to Geology 4 (3-3) Introductory physical geology for non-science majors; emphasis on western U.S. Credit not granted for more than one of Geol 101, 102, 180.

102 [P] Physical Geology 4 (3-3) For science majors and honors students. Modern concepts of earth science; mineral rock, resource, and map study. Field trip required. Credit not granted for more than one of Geol 101, 102, 180.

150 [Q] Conflict and Debate in Geological Sciences 4 (3-3) Examples in geology of how science is done, how it advances, and what constitutes scientific work.

180 [P] Honors Geology 4 (3-3) Prereq honors student or by interview. Introduction to physical geology with emphasis on original research and scientific writing. Credit not granted for more than one of Geol 101, 102, 180.

201 Geology of the National Parks 2 Prereq Geol 210. Significant geologic features, processes, and geologic history of the national parks. Field trip optional.

206 Field Petrology 3 (2-3) Prereq Geol 101 or 102. Hand sample analysis, petrogenesis and field relationships of rocks. Field trips required.


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.

260 Quantitative Concepts in Geology 2 (1-3) Prereq Chem 105; Geol 350 or c//; Math 108 or c//; Phys 101 or 201. Basic mathematical tools and physical principles for geologic problem solving.

300 Vertebrate Paleontology and Evolution 3 Prereq Geol 210. Vertebrate evolution with focus on dinosaurs including origins, physiology, behavior, and relationships.

308 [M] Geology Field Camp 6 (0-18) Prereq junior standing; Geol 340, 350. Detailed geologic mapping of an area; practice in methods of geologic field work. Cooperative course taught jointly by WSU and UI (Geol 301).

310 Invertebrate Paleontology 3 (2-3) Prereq Geol 210. Morphology, classification, evolution, and paleoecology of fossil invertebrate organisms.

315 Water and Earth 3 (2-3) Prereq Chem 106 and Geol 101; or 260; Math 140, 171, or c//; Phys 102 or 202. Global hydrologic cycle, including rivers and weathering, groundwater, rainwater and the atmosphere, oceans, human impacts. Field research required.


322 [P] Geology of the Pacific Northwest 3 Prereq Geol 101 or 102. Physical geology of the Pacific Northwest, focusing on geological processes important in its evolution. Field trips required. Credit not granted for both Geol 322 and 323.

323 [P] Geology of the Pacific Northwest 4 (3-3) Prereq Geol 101 or 102. Physical geology of the Pacific Northwest focusing on geological processes important to its evolution. Field trips required. Credit not granted for both Geol 322 and 323.


350 [M] Mineralogy and Crystallography 4 (2-6) Prereq Chem 101 or 105; Geol 101 or 102. Composition, physical properties, structure, crystallography, identification, and origin of minerals. Field trip required.

355 Optical Mineralogy 2 (1-3) Prereq Geol 350; Phys 102 or 202; c// in Geol 356. Elements of optical crystallography and optical identification of minerals.

356 Igneous Petrology 2 (1-3) Prereq Geol 355. Mineralogy and petrology of igneous rocks using the polarizing microscope. Field trip required.

362 Metamorphic Petrology 2 (1-3) Prereq Geol 356. Mineralogy and petrology of metamorphic rocks using the polarizing microscope. Field trip required.

403 Environmental Geology 3 Prereq Geol 101 or 102. Geological hazards and geologic problems associated with human activities. Option field trip.

405 Geophysics 4 (3-3) Prereq Geol 340. Theory and application of geophysical methods for hydrology, environmental, engineering, exploration, and structural geology; review of techniques. Credit not granted for both Geol 405 and 505.


426 Geological Engineering Principles 3 Prereq Geol 101 or 102. Phys 101 or 201. Application of geology to solution of engineering problems; emphasis on selection of rock and soil parameters for use in design analysis. Credit not granted for both Geol 426 and 526. Cooperative course taught by UI (GeolE 435), open to WSU students.

428 Geostatistics 3 Same as Stat 428. Cooperative course taught by UI (GeolE/Stat 428), open to WSU students.


475 Groundwater 3 (2-3) Prereq C E 317; or Geol 315; or all of the following four courses: Chem 106; Geol 101; Math 140 or 172; and Phys 101 or 202. Introduction to groundwater occurrence, movement, quality, and resource management, emphasizing physical and biogeochemical principles.

480 Introductory Geochemistry 3 Prereq Chem 106, Geol 350. The chemistry of Earth materials and processes.

491 Remote Sensing and Geologic Applications 3 (2-3) Prereq Geol 340; Phys 102 or 202. Remote sensing techniques and their utilization in geologic studies, air photos, radar, IR, and Landsat imagery used. Field trip required. Credit not granted for both Geol 491 and 591.
498 Undergraduate Seminar 1 May be repeated for credit; cumulative maximum 3 hours. Prerequisite major in Geol or related field. Research papers presented by students, faculty, and visiting scientists on geological research. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

505 Geophysics 4 (3-3) Graduate-level counterpart of Geol 405; additional requirements. Credit not granted for both Geol 405 and 505.

508 Advanced Field Methods 3 (0-9) May be repeated for credit. Individual instruction in advanced methods of field geology.

511 Advanced Topics in Paleontology 3 Prerequisite Geol 310, 320. Advanced problems and new techniques in paleontology from current literature. Cooperative course taught by WSU, open to UI students (Geol 511).

515 Paleocology 3 Ecological dynamics as applied to the paleontological record; preservation constraints; animal-sediment interactions; organisms' role in the relative time scale. Field trip required. Cooperative course taught by UI (Geol 515), open to WSU students.

520 Advanced Topics in Sedimentary Rocks 3 (2-3) May be repeated for credit; cumulative maximum 6 hours. Prerequisite Geol 320. Modern aspects of sedimentary rocks. Cooperative course taught by WSU, open to UI students (Geol 520).

521 Clastic depositional Systems 3 (2-3) Prerequisite Geol 320. Clastic depositional environments; architectural elements and facies analysis. Cooperative course taught by WSU, open to UI students (Geol 521).

525 Carbonate depositional Systems 3 (2-3) Prerequisite 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 525).

526 Geological Engineering Principles 3 Prerequisite standing. Graduate-level counterpart of Geol 426; additional requirements. Credit not granted for both Geol 426 and 526.

528 Petrology of Carbonate Rocks 3 (2-3) Prerequisite Geol 320. Origin, classification distribution, depositional environments, and diagenesis of modern and ancient carbonates; emphasis on petrographic analysis. Field trip required. Cooperative course taught by UI (Geol 528), open to WSU students.

529 Geologic Development of North America 3 Prerequisite Geol 310, 421. Tectonic, magnetic, and sedimentary sequence studies of North American continent through time; concepts of metal and petroleum enrichment related to time and geological processes. Field trip required. Cooperative course taught by UI (Geol 529), open to WSU students.

540 Tectonics 3 Prerequisite Geol 340. Nature and origin of the Earth's major tectonic features. Cooperative course taught by WSU, open to UI students (Geol 540).

541 Structural Analysis 3 (2-3) Prerequisite 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).

550 Advanced Mineralogy 3 Prerequisite Chem 106, Geol 355. Elements of crystal chemistry and crystal physics. Cooperative course taught by WSU, open to UI students (Geol 550).

551 Ore Microscopy and Fluid Inclusion Analysis 3 (0-9) Prerequisite Geol 355, 470. Ore and alteration mineralogy of major ore deposits; mineral identification, textural interpretation, sample preparation, photomicrography, fluid inclusion analysis. Field trip required. Cooperative course taught by WSU, open to UI students (Geol 551).

552 X-ray Analysis in Geology 3 (2-3) Generation and use of X-rays for geological research; electron microscope/SEM, X-ray fluorescence and X-ray powder diffraction. Cooperative course taught by WSU, open to UI students (Geol 552).

554 Physical Petrology 3 Prerequisite Geol 356. The applications of continuum mechanics and fluid dynamics to the generation, rise, storage, and eruption of magmas. Cooperative course taught by UI (Geol 554), open to WSU students.

557 High-Temperature Aqueous Geochemistry I 3 (2-3) Prerequisite Chem 331, Geol 582; or by interview only. Application of solution chemistry to hydrothermal solutions; Eh-pH, log (KJ) -pH, activity - activity diagrams; estimation techniques; water structure; metal complexation; solubility, transport and deposition; equilibrium speciation; geothermal fields; experimental methods; activity coefficients. Cooperative course taught by UI (Geol 557), open to WSU students.

558 High-Temperature Aqueous Geochemistry II 1-4 May be repeated for credit; cumulative maximum 6 hours. Advanced topics in igneous and metamorphic rock systems.

560 Advanced Igneous Petrology 3 (2-3) Origin, evolution, and tectonic significance of igneous rocks. Cooperative course taught by WSU, open to UI students (Geol 560).

561 Advanced Mineral Deposits 3 Modern concepts of the origin and geochemistry of metallic mineral deposits. Field trip required. Cooperative course taught by UI (Geol 561), open to WSU students.

563 Igneous Petrogenesis 3 (2-3) Prerequisite Geol 356. Chemical and petrologic techniques used to interpret the origin and evolution of igneous rocks.

565 Volcanology 3 (2-3) Prerequisite Geol 356. Eruption mechanisms, volcanic processes and landforms, and volcanic deposits. Field trips required. Cooperative course taught by UI (Geol 565), open to WSU students.

569 Field Methods in Hydrogeology 2 (1-3) Prerequisite Geol 475; Geol 577 or 579. Theory and practice of acquisition of hydrogeologic data, emphasizing design and execution of field experiments.

570 Advanced Topics in Hydrogeology 1-4 May be repeated for credit; cumulative maximum 9 hours. Prerequisite Geol 475. Topics may include organic/inorganic contaminant fate, recharge, carbon cycling, isotope applications.

571 Geochemistry of Hydrothermal Ore Deposits 3 (2-3) Prerequisite Geol 470. Ore formation in hydrothermal environments; sulfide mineral stability, water/rock interactions, and stable isotope relationships to altered rocks. Field trip required. Cooperative course taught by WSU, open to UI students (Geol 571).

573 Advanced Topics in Economic Geology 2 May be repeated for credit. Prerequisite Geol 470. Ore-forming processes or deposition type combining literate synthesis, theoretical evaluation and field trip inspection. Cooperative course taught by WSU, open to UI students (Geol 573).

574 Advanced Remote Sensing 3 (1-4) Same as SoilS 574.

575 Seminar in Remote Sensing 1 Same as SoilS 575.

579 Groundwater Hydraulics 3 Same as CEE 577.

582 Petrologic Phase Equilibria 3 Prerequisite standing. Thermodynamic and graphical analysis of phase equilibria in igneous and metamorphic rock systems.

584 Principles of Isotope Geochemistry 3 Principles and applications of isotope geochemistry in the geological sciences.

588 Isotope Geology 4 Prerequisite Geol 480. Geologically useful radioactive isotopes; geochronology and isotopes as tracers. Cooperative course taught by UI (Geol 588), open to WSU students.

591 Remote Sensing and Geologic Applications 3 (2-3) Graduate-level counterpart of Geol 491; additional requirements. Credit not granted for both Geol 491 and 591.

592 Advanced Topics in Structural Geology V 1-4 May be repeated for credit; cumulative maximum 6 hours. Advanced topics across normal subject boundaries. Cooperative course taught by WSU, open to UI students (Geol 592).

597 Advanced Topics in Geology V 1-4 May be repeated for credit; cumulative maximum 6 hours. Topics of current interest in geology.

598 Independent Seminar 1-4 May be repeated for credit; cumulative maximum 4 hours. Prerequisite graduate student in Geol or related field. Papers presented by students, faculty, and visiting scientists on geological research. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Department of History


Offerings in the field of history may be classified as American, Asian, European, and Latin American.

Department of Geology
A major in history can be used in government service, the new specialty of public history, 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 the Departments of English and Speech and Hearing Sciences, the department participates in the interdisciplinary Program in American Studies leading to the degree of Doctor of Philosophy.

**Degree Program Requirements**

Honors students complete Honors Requirements in place of General Education Requirements.

### HISTORY DEGREE PROGRAM (120 HOURS)

36 semester hours history courses required including at least 6 hours US history, 6 hours European history, and 6 hours history from other areas; 12 hours 100-200-level Hist; 3 hours additional Hist; 21 hours 300-400-level Hist including 3 hours of Hist 469; and 12 hour concentration (at least 6 hours 300-400-level) in the same or in related disciplines with the advisor’s approval.

At least 40 of the total hours required for the bachelor’s degree in this program must be in 300-400-level courses. 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 the student will have completed courses meeting General Education and College of Liberal Arts requirements for graduation.

#### Freshman Year

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<tr>
<th>First Semester</th>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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</tr>
<tr>
<td>Math Proficiency [N] (GER)</td>
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<td>Tier I Science [Q] (GER)²</td>
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<tr>
<td>Communication Proficiency [C,W] (GER)</td>
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<td>GenEd 111 [A] (GER)</td>
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<td>Intercultural [I,G,K] (GER)</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
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#### Sophomore Year

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<td>Foreign Language, if necessary, or Elective</td>
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#### Junior Year

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<td>Hist Elective (any level)³</td>
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#### Senior Year

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<td>Tier III Capstone (GER)</td>
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#### SOCIAL STUDIES DEGREE PROGRAM (120 HOURS)

Social Studies is traditionally a major for students who plan to earn both a BA and a primary teaching endorsement and is also an interdisciplinary Liberal Arts major. Students pursuing a teaching certificate must apply for admission to the 4-12 Initial Certificate Program and complete an additional approximately 35 hours of credits (which include 16 hrs. of student teaching).

#### Freshman Year

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<td>Math Proficiency [N] (GER)</td>
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<td>Tier I Science [Q] (GER)²</td>
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<td>Biological [B] or Physical [P] Sciences (GER)</td>
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<td>Soc 101 [S] or Hist 102 [H] (GER)</td>
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#### Sophomore Year

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#### Second Semester | Hours |
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<td>Pol S 101 [S] or Psych 105 [S] (GER)</td>
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**HISTORY EDUCATION DEGREE PROGRAM (120 HOURS)**

Students who wish to earn a teaching credential must apply to the teacher certification program in the College of Education. They should consult with an advisor in History.

36 hours of Hist, including 6 hours of U.S., 6 hours of European, 6 hours of other areas, of which 21 hours must be 300-400-level. Hist 480 is not counted as part of the 36 hours.

A supporting endorsement (18-21 hours) is required. It should be selected in consultation with an advisor. Students must have one year of a foreign language at the college level or two years at the high school level.

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<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>Biological [B] or Physical [P] Sciences (GER)</td>
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#### Second Semester | Hours |
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<td>Complete Writing Portfolio</td>
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<td>Approved Seminar²</td>
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#### Senior Year

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<td>300-400-level Social Studies Elective</td>
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<td>Hist 422</td>
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**HISTORY EDUCATION DEGREE PROGRAM (120 HOURS)**

Students who wish to earn a teaching credential must apply to the teacher certification program in the College of Education. They should consult with an advisor in History.

36 hours of Hist, including 6 hours of U.S., 6 hours of European, 6 hours of other areas, of which 21 hours must be 300-400-level. Hist 480 is not counted as part of the 36 hours.

A supporting endorsement (18-21 hours) is required. It should be selected in consultation with an advisor. Students must have one year of a foreign language at the college level or two years at the high school level.
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 above schedule of studies.

### Description of Courses

#### History

| Hist  101 [H] Classical and Christian Europe 3 | Greece and Rome, birth of Christianity and Islam, Middle Ages, Renaissance, Reformation, religious wars, Louis XIV. |
| Hist  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. |
| Hist  103 3 |  |
| Hist  110 3 |  |
| Supporting Endorsement 3 |  |

#### Second Semester Hours

| Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3 |  |
| Hist  111 3 |  |
| Hist  230, 231, 270, 272, 273, or 275 3 |  |
| Pol S 101 [S] or Psych 105 [S] (GER) 3 |  |
| Science Elective (GER) 3 |  |

#### Junior Year

**First Semester Hours**

| 300-400-level Hist Electives 6 |  |
| Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3 |  |
| Supporting Endorsement 6 |  |
| Complete Writing Portfolio 3 |  |

**Second Semester Hours**

| 300-400-level Electives 3 |  |
| 300-400-level Hist Elective 3 |  |
| Hist  422 3 |  |
| Supporting Endorsement 6 |  |

#### Senior Year

**First Semester Hours**

| 300-400-level Hist Electives 3 |  |
| 300-400-level Hist Elective 3 |  |
| Hist  469 3 |  |
| Supporting Endorsement 6 |  |

**Second Semester Hours**

| 300-400-level Hist Elective 3 |  |
| Hist  480 3 |  |
| Supporting Endorsement 3 |  |
| Tier III Capstone (GER) 3 |  |

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1 Students may also fulfill the 3-credit Tier I Science and the 1-credit Science Elective by taking a 4-credit Tier I Science course.
2 Supporting Endorsements should be chosen in consultation with the advisor; English is recommended.

### Minor in History

A minor in history requires 16 hours, 8 of which must be in 300-400-level courses. A grade of C or better is required in all course work for the minor.

### Preparation for Graduate Study

Students who have had basic undergraduate training in European and American 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.

1Open only to students in the Honors Program.

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312 [M] History of Canada 3 From European discovery through French settlement and English conquest to the persistent regional and ethnic diversity of the present.
313 [S] Civil Rights Movement in America 3 Same as CAC 335.
315 Topics in Canadian Studies 1 May be repeated for credit: cumulative maximum 5 hours. An interdisciplinary explanation through roundtable discussions, lectures, films, and readings of an important Canadian issue or region. S, F grading. Cooperative course taught jointly by WSU and UI (Hist 404).
320 [S] [M] American Agriculture and Rural Life 3 Same as Ag Ec 320.
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 Women in Latin American History 3 Survey of women’s changing roles throughout Latin America from precolonial to present.
337 Women in the Ancient World 3 Women’s roles in the Ancient Near East, Greece, and Rome; focus on the formation of western attitudes toward women.
340 [H] Ancient Greece 3 History and culture of the preChristian 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.
343 [H] History of England Since 1485 3 Continuation of Hist 342. English history from the reign of the first Tudor monarch, Henry VII, to the present welfare-state era.
345 Topics in History Study Abroad 3 May be repeated for credit; cumulative maximum 6 hours.
348 History of Scandinavia 3 A history of Scandinavia from earliest historical times to the present.
349 The Vikings in History 3 The political, social, and cultural history of Scandinavia and Viking expansion to Northern Europe, Russia, and the North Atlantic, ca 750-1100 CE.
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.
360 Foundations of Western Civilization 3 Major ideas and institutions from antiquity to the present which form the basis of Western civilization, presented thematically.
370 [G] Civilization of Classical India 3 Aspects of arts, literature, music, mythology, philosophy, and religion of India to A.D. 1000, treated in historical and cultural context.
373 [G] Chinese Civilization 3 Growth of Chinese civilization from the dawn of history to the present.
377 Women in the Ancient World 3 Women’s roles in the Ancient Near East, Greece, and Rome; focus on the formation of western attitudes toward women.
380 [S] History of Medicine 3 Medicine in English-speaking societies, Middle Ages to present; development of medical care as a social institution.
Department of History

477 Modern Japanese History 3 The development of state and society in Japan from 1800 to present. Credit not granted for both Hist 477 and 577.

480 Methods of Teaching Social Studies 3 Prereq certification; by interview only. Methods, resources, selection of content, past and present issues in social studies education.

483 [S] Technology and Social Change to 1950 3 Prereq completion of one Tier I and three Tier II courses in appropriate area of coherence. The emergence of modern technological society with emphasis on the period 1750-1950.

486 [M] United States Foreign Relations 3 Same as Pol S 427.

488 Classical Political Thought 3 Same as Pol S 437.

489 [M] Recent Political Thought 3 Same as Pol S 438.

490 Politics of Developing Nations 3 Same as Pol S 435. Credit not granted for both Hist 490 and 590.

491 [T] History of World Trade 3 Prereq completion of one Tier I and three Tier II courses in appropriate area of coherence. The evolution of the institutions, conditions, and consequences of world trade after 1000.

496 Topics in American Studies 3 May be repeated for credit; cumulative maximum 9 hours. Same as Engl 496. Credit not granted for both Hist 496 and 596.

497 Seminar 3 May be repeated for credit; cumulative maximum 6 hours.

498 History Internship V 1-12 May be repeated for credit; cumulative maximum 12 hours. Prereq major or minor in Hist. Participation as intern in public or private sectors. Credit not granted for both Hist 498 and 598.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

510 Field Course in American History 3 May be repeated for credit. Readings and interpretive problems of American history.

511 American Diplomatic History 1776-1914 3 Graduate-level counterpart of Hist 411; additional requirements. Credit not granted for both Hist 411 and 511.

512 American Diplomatic History in the 20th Century 3 Graduate-level counterpart of Hist 412; additional requirements. Credit not granted for both Hist 412 and 512.

513 Theory and Method in American Studies 3 Same as Engl 513.

515 Jefferson-Jacksonian America 3 Graduate-level counterpart of Hist 415; additional requirements. Credit not granted for both Hist 415 and 515.

516 Civil War and Reconstruction 3 Graduate-level counterpart of Hist 416; additional requirements. Credit not granted for both Hist 416 and 516.

517 Rise of Modern America 3 Graduate-level counterpart of Hist 417; additional requirements. Credit not granted for both Hist 417 and 517.

518 United States, 1914-1941 3 Graduate-level counterpart of Hist 418; additional requirements. Credit not granted for both Hist 418 and 518.

519 United States, 1941-Present 3 Graduate-level counterpart of Hist 419; additional requirements. Credit not granted for both Hist 419 and 519.

520 American Constitutional History 3 Graduate-level counterpart of Hist 420; additional requirements. Credit not granted for both Hist 420 and 520.

521 The American West 3 Graduate-level counterpart of Hist 421; additional requirements. Credit not granted for both Hist 421 and 521.

522 History of the Pacific Northwest 3 Graduate-level counterpart of Hist 422; additional requirements. Credit not granted for both Hist 422 and 522.

523 American Social and Intellectual History 3 Graduate-level counterpart of Hist 423; additional requirements. Credit not granted for both Hist 423 and 523.

524 History of American Popular Culture 3 Graduate-level counterpart of Hist 424; additional requirements. Credit not granted for both Hist 424 and 524.

525 Seminar in American History 3 May be repeated for credit.

527 Public History: Theory and Methodology 3 Graduate-level counterpart of Hist 427; additional requirements. Credit not granted for both Hist 427 and 527.

528 Seminar in Public History 3 May be repeated for credit; cumulative maximum 6 hours. The development of skills at the graduate level to be used in nontraditional careers for historians.

529 Interpreting History through Material Culture 3 Historical interpretation to work on major historic preservation and museum projects.

530 History of Mexico 3 Prereq graduate standing. Graduate-level counterpart of Hist 430; additional requirements. Credit not granted for both Hist 430 and 530.

532 20th Century Latin America 3 Prereq graduate standing. Graduate-level counterpart of Hist 432; additional requirements. Credit not granted for both Hist 432 and 532.

533 History of Cuba and the Caribbean 3 Prereq graduate standing. Graduate-level counterpart of Hist 433; additional requirements. Credit not granted for both Hist 433 and 533.

534 History of Central America 3 Prereq graduate standing. Graduate-level counterpart of Hist 434; additional requirements. Credit not granted for both Hist 434 and 534.

535 Field Course in Latin American History 3 May be repeated for credit; cumulative maximum 9 hours. Readings and interpretive problems in Latin American history.

540 Seminar in European History 3 May be repeated for credit.

547 Europe in the French Revolutionary and Napoleonic Era, 1789 to 1815 3 Graduate-level counterpart of Hist 447; additional requirements. Credit not granted for both Hist 447 and 547.

549 Europe and Two World Wars, 1914-1945 3 Graduate-level counterpart of Hist 449; additional requirements. Credit not granted for both Hist 449 and 549.

550 Europe Since 1945 3 Graduate-level counterpart of Hist 450; additional requirements. Credit not granted for both Hist 450 and 550.

553 Age of Revolution: Europe, 1815-1870 3 Graduate-level counterpart of Hist 453; additional requirements. Credit not granted for both Hist 453 and 553.

554 Age of Empires: Europe, 1870-1914 3 Graduate-level counterpart of Hist 454; additional requirements. Credit not granted for both Hist 454 and 554.

555 From the Tudor Revolution to the Glorious Revolution 3 Graduate-level counterpart of Hist 455; additional requirements. Credit not granted for both Hist 455 and 555.

559 Modern Britain 3 Graduate-level counterpart of Hist 459; additional requirements. Credit not granted for both Hist 459 and 559.

560 Field Course in Early European History 3 May be repeated for credit; cumulative maximum 9 hours. Readings and issues in early European history.

562 History of Imperial Russia 3 Graduate-level counterpart of Hist 462; additional requirements. Credit not granted for both Hist 462 and 562.

563 History of the Soviet Union 3 Graduate-level counterpart of Hist 463; additional requirements. Credit not granted for both Hist 463 and 563.

565 East-Central Europe 3 Graduate-level counterpart of Hist 465; additional requirements. Credit not granted for both Hist 465 and 565.

568 Hitler and Nazi Germany 3 Graduate-level counterpart of Hist 468; additional requirements. Credit not granted for both Hist 468 and 568.

569 Field Course in Modern European History 3 May be repeated for credit; cumulative maximum 9 hours. Readings and interpretive problems in modern European history.

570 Field Course in Comparative History 3 May be repeated for credit; cumulative maximum 9 hours. Readings and issues in the comparative history of major world regions.

571 World History: Theory and Methodology 3 An introduction to themes, theories, methods, and literature of a global approach to history.

572 20th Century Middle East 3 Graduate-level counterpart of Hist 472; additional requirements. Credit not granted for both Hist 472 and 572.

576 Revolutionary China, 1800 to Present 3 Graduate-level counterpart of Hist 476; additional requirements. Credit not granted for both Hist 476 and 576.

577 Modern Japanese History 3 Graduate-level counterpart of Hist 477; additional requirements. Credit not granted for both Hist 477 and 577.

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

581 American Historiography 3

590 Politics of Developing Nations 3 Graduate-level counterpart of Hist 490; additional requirements. Credit not granted for both Hist 490 and 590.

595 The Teaching of History in College V 1 or 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 596.

597 Seminar in History 2 or 3 May be repeated for credit.

598 History Internship V 1-12 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 598.
Honors Program

J. F. Lawrence, Director

The primary objective of the University Honors Program is to provide enriched educational opportunities for eligible students. The program promotes greater understanding of the artistic, natural, and cultural world and is designed to supplement the more specialized training in the major field. It also provides the opportunity and the stimulus for students to develop their creative abilities.

The University Honors Program is comprised of students from all departments and colleges who take honors courses in place of General Education Requirements throughout their undergraduate career. Many departments and colleges offer special honors courses for their students in addition to the university honors courses.

Students who are not admitted to the University Honors Program as incoming first year students may petition to enter the UHP any time after the end of their first semester but no later than the beginning of the junior year. For continued enrollment in the University Honors Program, students must maintain an overall B+ average (3.2). Students in the UHP are not required to complete the General Education Requirements for graduation, except for the foreign language requirement where it applies.

Students who satisfactorily complete all UHP requirements, earn a 3.2 grade point average in honors courses, and a cumulative grade point average of 3.2, will receive a University Honors Certificate of Completion provided they have completed a minimum of 14 graded credits of honors courses and seminars.

The mathematics requirement for students in the University Honors Program can be met in a number of ways. Students who, on the basis of the math placement exam, test into Math 172, are exempt from this requirement, as are students awarded Math 171 advanced placement credit. Most students fulfill their mathematics requirement by completing the math required by their major department, or, if no math is required by their major, by meeting the math requirements set by the General Education Program. Typical math courses include the following: Math 140, 171, 202, 205, 206, 210, 212, or 251 and 252. For any questions concerning the math requirement, check with a University Honors Program advisor.

Students taking biological science laboratory courses for their majors may be exempt from this requirement.

Students taking physical science laboratory courses for their majors may be exempt from this requirement.

A minimum of 3 credits of independent study is required. This requirement may be fulfilled through Special Problems (U H 499), during the summer or academic year. This option involves a nonclassroom academic experience, under the guidance of a professor, designed by the student and the professor.

Phil and Hum can be taken from the freshman year on.

Description of Courses

A S 198 Animal Science Honors 3
Anth 198 [S] Anthropology Honors 3
Bio S 298 [B] Biological Science Honors 4 (3-3)
Chem 115 Chemical Principles Honors I 4 (3-3)
Chem 116 Chemistry Principles Honors II 4 (3-3)
Econ 198 [S] Economics Honors 3
Engl 198 [W] English Composition Honors 3
Engl 199 [H] English Composition and Literature Honors 3
Geol 180 [P] Geology Honors 4 (3-3)
Hist 198 [S] History Honors 3
Hum 198 [H] Humanities Honors 3
Phil 198 [H] Philosophy Honors 3
Ph S 298 Physical Science Honors 4 (3-3)
Phys 205 Physics Honors 5 (3-5)
Pol S 198 [S] Political Science Honors 3
Psych 198[S] Psychology Honors 3
Soc 198 [S] Sociology Honors 3

University Honors

U H

105 Honors Freshman Seminar: 1 Introduction to the academic culture and opportunity to enrich learning in entry-level courses. Credit not granted for more than one of GenEd 104, 105, U H 105.

150 Introduction to Science and Technology 3 (2-3) Physical/biological science principles, methods and roles of scientists and engineers, historical context, current technological issues, limits of scientific inquiry.

200 Sophomore Summer Reading Examination V 1-3 May be used to fulfill the independent study requirement for the Honors Program. Examination to be taken during first six weeks of first semester of sophomore year. Variable credit depending on extent and quality of summer reading. S, F grading.
260 Honors Seminar 2 May be repeated for credit. In-depth study of selected topics.

300 Junior Summer Reading Examination V 1-3 May be used to fulfill the independent study requirement for the Honors Program. Examination to be taken during the first six weeks of first semester of junior year. Variable credit depending on extent and quality of summer reading. S, F grading.

330 Development of Western Civilization 3 Examination of the literary, cultural, philosophical, and historical traditions within modern civilization. Required of all Honors Program students in their junior or senior year.

350 Development of Global Civilizations 3 Cultural and historical traditions of one or more civilizations; primary focus on Asian, African, Middle Eastern, and South American civilizations. Required of all Honors Program students in their junior or senior year.

400 Senior Summer Reading Examination V 1-3 May be repeated for credit; cumulative maximum 6 hours. May be used to fulfill the independent study requirement for the Honors Program. S, F grading.

430 Foreign Study Practicum and Reports V 1-4 By interview only. Special assignments and reports related to foreign study programs. S, F grading.

440 Domain of the Arts 3 An examination, frequently comparative, of the visual, literary, environmental, and performing arts. Required of all Honors Program students in their senior year.

450 Honors Thesis or Project V 1-3 May be repeated for credit; cumulative maximum 3 hours. Thesis or project directed by student’s major department. S, F grading. Credit not granted for more than one of U H 450, 451, 452, 453, 454, 455, 456.

451 Honors Interdisciplinary Thesis/Project V 1-3 May be repeated for credit; cumulative maximum 3 hours. In-depth reading and writing project based upon original research and work; supervised by faculty members from two or more departments. S, F grading. Credit not granted for more than one of U H 450, 451, 452, 453, 454, 455, 456.

452 Honors Community Service Project V 1-3 May be repeated for credit; cumulative maximum 3 hours. Supervised academic experience based on community service or designed to address in-depth particular social problems; formal research paper. S, F grading. Credit not granted for more than one of U H 450, 451, 452, 453, 454, 455, 456.

453 Honors Internship Project V 1-3 May be repeated for credit; cumulative maximum 3 hours. Supervised experiential learning project combining academic training with practical experience within one’s career field or other areas; formal research paper. S, F grading. Credit not granted for more than one of U H 450, 451, 452, 453, 454, 455, 456.

454 Honors Teaching Project V 1-3 May be repeated for credit; cumulative maximum 3 hours. Classroom and teaching experience; results are presented in a formal research paper. S, F grading. Credit not granted for more than one of U H 450, 451, 452, 453, 454, 455, 456.

455 Honors Education Abroad Project V 1-3 May be repeated for credit; cumulative maximum 3 hours. Supervised writing and research carried out while participating in a WSU-sponsored exchange. S, F grading. Credit not granted for more than one of U H 450, 451, 452, 453, 454, 455, 456.

456 Honors Team Research Projects V 1-3 May be repeated for credit; cumulative maximum 3 hours. Collaborative writing and research experience guided by one or more faculty members; collaborative project and individually produced formal research papers. S, F grading. Credit not granted for more than one of U H 450, 451, 452, 453, 454, 455, 456.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Department of Horticulture and Landscape Architecture


Horticulture

Courses in horticulture are designed to give instruction in fruit, vegetable, and ornamental production, handling, utilization, and management. Emphasis is on developing an understanding of plant growth and development fundamental to crop management. A production and management emphasis is designed to prepare students to be professionals in production, handling and processing, marketing, consulting, government, management, and related fields. A science emphasis is designed to prepare students for graduate study and careers in research and teaching.

The department offers an undergraduate minor in the areas of fruit and vegetable production or environmental horticulture.

Horticultural production and management students are encouraged to minor in business administration or agricultural economics. Horticultural science students are encouraged to take additional courses in chemistry, biochemistry, genetics, mathematics, and physics.

An interdisciplinary curriculum in integrated pest management is available to those students whose interests span the areas of horticulture and pest management. The curriculum is described under the entomology section of this bulletin.

The department offers courses of study leading to the degrees of Bachelor of Science in Horticulture, Bachelor of Science in Landscape Architecture, Master of Science in Horticulture, and Doctor of Philosophy.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

Students in horticulture may focus on environmental horticulture, fruits and vegetables, or tree fruit management.

At least 40 of the total hours required for the bachelor’s degree in these programs must be in 300-400-level courses.

ENVIRONMENTAL HORTICULTURE

DEGREE PROGRAM (133 HOURS) ✔FYDA

Freshman Year

First Semester

Hours

Arts & Humanities [H,G] (GER) 3
Bot 120 [B] (GER) 4
Chem 101 [P] or 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] or 111 [A] (GER) 3

Second Semester

Hours

Chem 102 [P] or 106 [P] (GER) 4
GenEd 110 [A] or 111 [A] (GER) 3
H D 205 [C] or SpCom 102 [C] (GER) 3
Hort 201 4
LA 264 3

Sophomore Year

First Semester

Hours

Chem 240 or 340 5 or 4
Hort 231 3
Hort 234 3
Intercultural [L,G,K] (GER) 3
Soils 201 3

Second Semester

Hours

Ag Ec 201 [S] or Econ 102 [S] (GER) 3
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Hort 232 3
Hort 251 4
Math Proficiency [N] (GER) 3
Summer Session—Hort 399 3

Junior Year

First Semester

Hours

Business or Science Emphasis 2 6
Bot 320 4
Hort 331 3
Hort 356 1
PI P 429 3
Complete Writing Portfolio

Second Semester

Hours

Business or Science Emphasis 2 6
Cpt S Elective 3 or 4
Entom 340 3
Soils 441 3

Senior Year

First Semester

Hours

Business or Science Emphasis 2 3
Hort 310 or 313 3
Hort 320 3

156
FRUIT AND VEGETABLE HORTICULTURE DEGREE PROGRAM (121 HOURS)

Second Semester
Business1 or Science Emphasis2 3
Hort 416 3
Hort 425 [M] 3
Hort 439 3
IPM Elective 2 or 3
Tier III Capstone (GER) 3

Electives 6

Freshman Year
First Semester
Bot 120 [B] (GER) 4
Chem 101 [P] or 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3

Second Semester
Chem 102 [P] or 106 [P] (GER) 4
Cpt S Elective 3
H D 205 [C] or ScpCom 102 [C] (GER) 3
GenEd 111 [A] (GER) 3
Hort 201 4

Sophomore Year
First Semester
Arts & Humanities [H,G] (Ger) 3
Chem 240 4
Hort 234 3
Hort 310 & 311; 313; or 320 & 321 3 or 4
SoilS 201 3

Second Semester
Ag Ec 201 [S] or Econ 102 [S] (GER) 3
Arts & Humanities [H,G] or Social Science [S,K] (GER) 3
Bot 320 4
Hort 251 4
Math Proficiency [N] (GER) 3

Junior Year
First Semester
Hort 310 & 311; 313; or 320 & 321 3 or 4
Hort 356 1
Hort Elective 3
Intercultural [I,G,K] (GER) 3
PI P 429 3
Complete Writing Portfolio

Second Semester
Entom 340 3
Environmental Hort Elective 3
GenCB 150 or 301 3 or 4
SoilS 441 3
Elective 3
Summer Session—Hort 399 3

Senior Year
First Semester
Hort 418 [M] 3
Hort 310 & 311; 313; or 320 & 321 3 or 4
Tier III Capstone (GER) 3
Elective 3

Second Semester
Hort 416 3
IPM Elective 2 or 3
Hort 425 [M] 3
Electives 6

TREE FRUIT MANAGEMENT DEGREE PROGRAM (146 HOURS)

The Tree Fruit Management option in the Horticulture B. S. degree is an integrated, cooperative program between Wenatchee Valley College and the Department of Horticulture and Landscape Architecture. This option is designed to train professional horticulturists for deciduous tree fruit industries. The first half of the program is taken at Wenatchee Valley College, where the educational emphasis is on applied aspects of tree fruit production and management through courses, orchard practicum experiences and internships. 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, laboratories and research experience provide students with an advanced knowledge of the science, technology and management of tree fruit production systems. Additional courses are taken to increase the breadth of knowledge about the diversity of horticultural crops and awareness of current issues in horticultural science.

Freshman Year (Wenatchee Valley College)

Fall Quarter
Agri 153 4
Agri 161 5
Chem 110 (WSU [P] GER) 5
Engl 101 (WSU [P] GER) 5

Winter Quarter
Agri 152 4
Agri 162 5
Biol 122 (WSU [B] GER) 5
CIS 115 5

Spring Quarter
Agri 154 2
Agri 163 5
Chem 111 (WSU [P] GER) 5
Math 201 (WSU [N] GER) 5

Summer Quarter
Agri 115 5
Agri 155 2

Sophomore Year (Wenatchee Valley College)

Fall Quarter
Agri 242 4
Agri 264 5
Agri 292 4
Spch 220 (WSU [C] GER) 5

Winter Quarter
Agri 218 4

Senior Year (Washington State University)

Fall Semester
Chem 240 4
GenEd 110 [A] (GER) 3
Hort 499 4
Hort Elective 3 or 4
Complete Writing Portfolio

Spring Semester
Arts & Humanities [H,G] (GER) 3
GenCB 150 or 301 3 or 4
GenEd 111 [A] (GER) 3
Hort 251 4
Intercultural [I,G,K] (GER) 3

Minor in Horticulture

A minimum of 16 hours in Horticulture is required, of which at least 8 hours must be in 300-400-level courses excluding Hort 356, 399, and 499. Hort 201 and 234 or 251 are required. All pass, fail enrollments must be approved by the department chair.

Preparation for Graduate Study

Students with undergraduate majors in the plant sciences, including horticulture, crop science, plant pathology, environmental science, genetics, plant physiology and biochemistry may be well prepared for graduate study in horticulture.

Undergraduate students who are pursuing their studies at other institutions, or through other curricula at this institution, and who contemplate graduate work in horticulture should take as many courses in the basic physical and biological sciences as possible.

LANDSCAPE ARCHITECTURE

Landscape architecture is the professional art and science of planning and designing land elements so that the activities of people are in harmony with
their environment. The practice ranges in scale from the design of residential and garden landscapes to planning and design of complex projects such as cities and regions.

The curriculum is accredited by the American Society of Landscape Architects (ASLA). It stresses a broadly based course of study emphasizing residential, community, and urban design; site, regional and land use planning, and professional practice methods.

The curriculum is divided into two parts: pre-landscape architecture and landscape architecture. The opportunity exists to participate in special studies, professional work experiences and foreign study.

Degree Program Requirements
Honors students complete Honors Requirements in place of General Education Requirements.

PRE-LANDSCAPE ARCHITECTURE
Prelandscape architecture (preLA) 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 preLA 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 preLA 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.

Freshman Year
First Semester Hours
Bot 120 [B] (GER) 4
Engl 101 [W] (GER) 3
ES/EP 150 [Q] (GER) 3
GenEd 110 [A] (GER) 3
Math Proficiency [N] (GER) 3
Second Semester Hours
Chem 101 [P] (GER) 4
Communication [C,W] (GER) 3
F A 101 [H], 201 [H], or 202 [H] (GER) 3
GenEd 111 [A] (GER) 3
L A 202 3
Sophomore Year
First Semester Hours
Hort 231 3
Intercultural [I,G,K] (GER) 3
L A 101 3
L A 260 3
L A 262 3
Second Semester Hours
Graphics Elective 3
Hort 232 3
L A 263 3
L A 365 3
L A 400 3

LANDSCAPE ARCHITECTURE (154 HOURS)  ✔ FYFA (FIVE-YEAR AGREEMENT)
The professional five-year course of study is divided into two segments. These are prelandscape architecture (listed above) and the third-through fifth-year professional landscape architecture program (BL A). Completion of the five-year program totaling 154 credits leads to the degree of Bachelor of Landscape Architecture and allows the graduate to enter the profession. At least three additional years of professional experience and successful completion of the landscape architectural license examination are necessary for registration as a licensed landscape architect in most states.

To be admitted to the major of L A, 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 passing grade of C or better for students to be admitted into the professional program: Bot 20, Hort 231, 232, L A 101, 260, 262, 365, 400.

Transfer students who have completed the equivalent of the preLA curriculum may apply to the professional program. The entire fourth year of the program is conducted at the Interdisciplinary Design Institute on the WSU Spokane branch campus. Students may choose to complete their fifth year in Spokane or Pullman.

Junior Year
First Semester Hours
Bio S 372, Bot 462, or NATRS 300 3
Hort 331 3
L A 362 4
L A 366 4
SoilS 201 3
Complete Writing Portfolio
Second Semester Hours
AgTM 346 3
Social Sciences [S,K] (GER) 3
L A 363 4
L A 367 3
SoilS 374 3
Senior Year
First Semester Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
L A 425 3
L A 450 [M] 3
L A 460 5
L A 480 2
Second Semester Hours
L A 467 4
L A 470 4
L A 475 2
Social Sciences [S,K] (GER) 3
Elective 3
Fifth Year
First Semester Hours
L A 485 4
Electives 9
Second Semester Hours
L A 486 [M] 4

d 1 Students will select two specialization options of 9 credits each from the following: Business, Horticulture/Plant Science, Natural Resources/ Ecology, Urban Design, Public Policy/Planning, Computer Applications, Self-Directed.

Description of Courses
Horticulture
Hort 101 Horticulture and Society 3 (2-3) Principles and practices of gardening for personal, economic, environmental and social benefits; horticultural technologies; fruits, vegetables, landscape and interior plants.

201 Introduction to Horticultural Science 4 (3-3) Prereq Bot 120. Fundamentals of plant growth and development at the cellular and whole plant levels as influenced by environment and management decisions.

231 Landscape Plant Materials I 3 (2-3) Prereq Bot 120 or Hort 201. Characteristics, ecology, nomenclature, identification, selection, and use of important woody and herbaceous landscape plant species.

232 Landscape Plant Materials II 3 (2-3) Prereq Bot 120 or Hort 201. Continuation of Hort 231.

234 Controlled Environments for Horticultural Production 3 (2-3) Prereq Hort 201. Principles and practices for modifying environmental factors for horticultural production in controlled environments; methods for environmental measurements. Field trip required. Cooperative course taught by WSU, open to UI students (PlSc 234).

251 Plant Propagation 4 (2-6) Prereq Bio S 103, Bot 120, Hort 101, or 201. Principles and methods of multiplying herbaceous and woody plants and their handling up to useable size. Field trip required.

304 Growth and Development of Crop Plants I 2 Prereq Bio S 104 or Bot 120. Understanding anatomical structure of plants, internal growth regulation, environmental effects on growth, application of knowledge to cropping systems.

310 Pomology Laboratory 1 (0-3) Prereq c// in Hort 310. Cultural practices in deciduous tree-fruit production. Field trip required.

313 Viticulture and Small Fruits 3 Prereq biological science, botany, or plant science course. Science and management of deciduous tree-fruit production. Cooperative course taught by WSU, open to UI students (PlSc 461).

311 Pomology Laboratory 1 (0-3) Prereq c// in Hort 310. Cultural practices in deciduous tree-fruit production. Field trip required.

320 Olericulture 3 Prereq Hort 201 or plant science course; 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).

158
321 Olericulture Laboratory 1 (0-3) Prereq c// in Hort 320. Production principles and practices of vegetable crops; plant characteristics, cultivars, nutrition, growth, and development. Field trip required. Cooperative course taught by WSU, open to UI students (PlSc 321).

325 Plant Biotechnology 3 Same as Bot 325. Principles and practices for installation and management of interior and exterior landscapes; specifications, site preparation transplanting, growth control, problem diagnosis.

340 Nursery Management 3 (2-3) Management of commercial nurseries from plant propagation through sale of plants. Field trip required. Cooperative course taught by UI (PlSc 340), open to WSU students.

356 Preparation for Entering the Horticulture Profession 1 Prereq junior in Hort. Resume writing; job applications; interviewing; investigation of job opportunities; contact with employers; internship reports; practice in oral communication.

399 Professional Work Experience V 2-4 May be repeated for credit, cumulative maximum 8 hours. Prereq basic horticulture. By interview only. Planned and supervised work experience. S, F grading.

405 Genetic and Molecular Aspects of Plant Reproduction 2 or 3 Prereq BC/BP 364, Bot 320, GenCB 301. Genetic, molecular, cellular and evolutionary aspects of plant reproductive strategies and their manipulations. Credit not granted for both Hort 405 and 505.

416 Advanced Horticultural Crop Physiology 3 Prereq Bot 320. Physiological processes related to growth, development, and productivity of horticultural crops; advances in recombinant DNA technology; the impact on horticultural practices. Credit not granted for both Hort 416 and 516.


418 [M] Post-harvest Biology and Technology 3 (2-3) Prereq Hort 201; Bot 320. Physical and physiological basis for handling and storage practices; perishable organ ontogeny and physiological disorders; post-harvest environment requirements. Field trip required. Cooperative course taught by WSU, open to UI students (PlSc 418). Credit not granted for both Hort 418 and 518.

420 Potato Physiology and Production Technology 2 (1-3) Prereq Bot 320. Plant and tuber physiology; physical, chemical, physiological and technical concepts of production, storage, and processing of potatoes. Field trip required. Credit not granted for both Hort 420 and 520. Cooperative course taught by WSU, open to UI students (PlSc 420).

421 [M] Management of Woody Horticultural Crops 3 Prereq woody horticultural crop production, a plant physiology course. Management strategies for optimizing the productivity and resource utilization efficiency of woody fruit tree, vine, and ornamental crops. Cooperative course taught by WSU, open to UI students (PlSc 421 and 521).

425 [M] Current Topics in Horticulture 3 Prereq Bot 320; Hort 234, 311, or 320. Classical, current scientific, and popular literature on horticultural topics.

438 Ornamental Plant Production I 3 (2-3) Prereq Hort 234. Fall and winter production practices of greenhouse and nursery crops. Field trip required. Cooperative course taught by WSU, open to UI students (PlSc 438). Credit not granted for both Hort 438 and 538.

439 Ornamental Plant Production II 3 (2-3) Prereq Hort 234. Production requirements for spring greenhouse and nursery crops; garden center management considerations. Field trip required. Credit not granted for both Hort 439 and 539. Cooperative course taught by WSU, open to UI students (PlSc 439).

445 [M] Plant Breeding 3 Same as CropS 445.

469 Seed Production 3 Same as CropS 469.

480 Agricultural Issues 1 Prereq Bio S 103, junior standing. Facts regarding current issues about pollution, the environment, marketing, and endangered species; formulation of position statements regarding current issues.

490 Potato Science 3 Prereq Hort 416. History, botanical characteristics, seed physiology and production, plant population, physiology of growth, and pest management; factors influencing maturation, harvest, yield, grade, bruise control, storage, and quality maintenance; economics of production and research on a global basis. Credit not granted for both Hort 490 and 590. Cooperative course taught by UI (PlSc 490), open to WSU students.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

503 Advanced Topics in Horticulture V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq Bot 320. Current topics and research techniques in horticulture.

505 Genetic and Molecular Aspects of Plant Reproduction 2 or 3 Graduate-level counterpart of Hort 405; additional requirements. Credit not granted for both Hort 405 and 505.

509 Seminar 1 May be repeated for credit; cumulative maximum 4 hours. Continuous enrollment required. Seminar for regularly enrolled graduate students in Hort. Recent developments in horticulture. S, F grading.

510 Graduate Seminar 1 May be repeated for credit; cumulative maximum 4 hours. Literature reviews and research progress reports.

512 Advanced Pomology 3 Modern concepts, research, and problems of the fruit industry as reflected by current literature; practice in critical review of scientific literature.

515 Seminar in Plant Physiology 1 May be repeated for credit; cumulative maximum 4. A cross-discipline seminar, including botany, crop and soil sciences, horticulture, plant pathology, and plant physiology.

516 Advanced Horticultural Crop Physiology 3 Graduate-level counterpart of Hort 416; additional requirements. Credit not granted for both Hort 416 and 516.

518 Post-Harvest Biology and Technology 3 (2-3) Prereq 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).

520 Potato Physiology and Production Technology 2 (1-3) Graduate-level counterpart of Hort 420; additional requirements. Credit not granted for both Hort 420 and 520. Cooperative course taught by WSU, open to UI students (PlSc 570).

521 Management of Woody Horticultural Crops 3 Graduate-level counterpart of Hort 421; additional requirements. Credit not granted for both Hort 421 and 521.

533 Plant Tissue, Cell, and Organ Culture 3 (1-6) Prereq senior standing. By interview only. Current plant tissue techniques used in research and industry to solve problems. Cooperative course taught jointly by WSU and UI (PlSc 533).

536 Plant Genetic Engineering Laboratory 2 (0-6) Same as CropS 536.

538 Ornamental Plant Production I 3 (2-3) Graduate-level counterpart of Hort 438; additional requirements. Credit not granted for both Hort 438 and 538. Cooperative course taught by WSU, open to UI students (PlSc 538).

539 Ornamental Plant Production II 3 (2-3) Graduate-level counterpart of Hort 439; additional requirements. Credit not granted for both Hort 439 and 539. Cooperative course taught by WSU, open to UI students (PlSc 539).

570 Plant Molecular Genetics 3 Same as GenCB 570.

590 Potato Science 3 Graduate-level counterpart of Hort 490; additional requirements. Credit not granted for both Hort 490 and 590. Cooperative course taught by UI (PlSc 590), open to WSU students.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Description of Courses

Landscape Architecture

L.A

101 Landscape Architecture Graphics 3 (1-6) Basic mechanical and freehand drawing; use of various drafting media, two- and three-dimensional drawing, lettering, and rendering techniques.

202 [H] The Built Environment 3 Same as Arch 202.

250 Beginning Landscape Design and Construction 3 (2-3) Prereq sophomore standing; by interview only. Basic landscape architecture design and construction for small spaces.

260 History of Landscape Architecture 3 Historical development in the practice and profession of landscape architecture throughout the world, circa B.C. to present. Cooperative course taught jointly by WSU and UI (LARC 389).

262 Landscape Architectural Design I 3 (2-3) Prereq Arch 102 or L.A 101. Application of basic design principles and design process to site planning; integration of design graphics and verbal/graphic presentations.

263 Landscape Architectural Design II 3 (0-6) L.A 262. Basic design and graphic techniques related to solving of elementary design problems.

264 Basic Landscape Design 3 For nonmajors. Design theory and principles; site design factors; design process application; construction criteria; graphic construction communication; landform; circulation systems; plant uses.
299 Professional Work Experience: Contracting and Maintenance 1 or 2 Prereq major in preLA or L.A. Project planned with and approved by faculty as professional work experience; written report and presentation to faculty required.

362 Landscape Architectural Design III 4 (2-6) Prereq L.A. 263, junior in L.A. Professional site design processes; concentration on planting and site planning, design with urban community, ecological, and open-space projects.

363 Landscape Architectural Design IV 4 (2-6) Prereq L.A. 263, junior in L.A. Professional site design processes; concentration on recreation facilities and site planning within residential, urban, institutional, and regional projects.

365 Landscape Architectural Construction I 4 (2-6) Prereq L.A. 262. Basic grading and surface drainage facilities, subsurface drainage systems, horizontal and vertical road design, site design, and construction document techniques.


399 Professional Work Experience: Office Practice 1 or 2 May be repeated for credit; cumulative maximum 4 hours. Prereq junior in L.A. Planned professional work experience in design and office practice as approved by faculty; written report and presentation to faculty required. S, F grading.

400 Introduction to Computer Graphics in Landscape Architecture 3 (2-3) Applications and techniques in computer graphics; 2-D and 3-D computer-aided design, animation, and paint systems; techniques in modeling systems.

425 Issues in Landscape Evolution and Design Theory 3 Prereq senior standing. Investigation of historical relationships between humans and environment; exploration of major theoretical approaches to design, planning, and management of landscapes.

440 Advanced Application in Computer-Aided Design 3 Prereq introductory course in CAD. Advanced applications in 2-D and 3-D CAD, including photorealistic modeling and rendering, landform analysis, animation, and customization.

450 [M] Principles and Practice of Planning 3 Same as ES/SP 450.

460 Interdisciplinary Design Studio 5 (2-6) Prereq senior standing in L.A. Interdisciplinary design/problem solving in an urban environment; collaboration with students in other design professions; real-world, service-based learning programs.

467 Regional Landscape Inventory and Analysis 4 (2-6) Prereq Bio S 120; Geol 101 or Soils 201. Application of ecological planning process for landscape inventory and analysis.

468 [M] Senior Creative Project 4 Prereq L.A. 475. Individually developed studio and scholarly projects; includes a faculty mentor, demonstration of advanced verbal, graphic, and written presentations required.

470 Landscape Architectural Design V 4 (1-9) Prereq senior in L.A. 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 senior in L.A. Program planning for senior project. S, F grading.

480 Professional Practice 2 Prereq senior in L.A. 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 (L.A. 358).

485 Senior Creative Project I 4 (0-8) Prereq L.A. 425. Individually developed studio or scholarly project conducted with faculty advisor; collection, analysis, and interpretation of project information.

486 Senior Creative Project II 4 (0-8) Prereq L.A. 485. Individually developed studio or scholarly project conducted with faculty advisor; synthesis of information, solution development, and documentation.

491 Topics in Design 3 Prereq junior standing.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

510 Philosophy and Theory in Landscape Architecture 3 Prereq graduate standing. Natural and cultural processes that characterize the interaction between humans and the landscape.

511 Methodology and Communication in Landscape Architecture 3 Prereq graduate standing. Methods of investigation and analysis of tools used for communication in landscape architecture research.

520 The Northern Rocky Mountain Regional Landscape 4 (2-4) Prereq graduate standing. Biophysical characteristics of the Northern Rocky Mountain regional landscape.

521 Cultural Interpretation of the Regional Landscape 4 (2-4) Prereq graduate standing. Cultural characteristics of the Northern Rocky Mountain regional landscape.

700 Master's Research, Thesis, and/or Examination Variable Credit. S, F grading.

Program in Hotel and Restaurant Administration

Director, W. T. Umbret; Taco Bell Distinguished Professor, W. Maynard; Professor, D. Rutherford; Associate Professor and Associate Director, C. Riegel; Associate Professor, W. Maynard; Professor, D. Rutherford; Assistant Professor, M. E. Gustin; Assistant Professor, W. H. Samenfink; Lecturers, W. Costen, D. Dolquist, K. Hadley, T. Mulligan, L. Reed; Professors Emeriti, P. Diaz, L. Kreck, D. Smith.

The program provides instruction at WSU Pullman and also to qualified transfer students at the off-site locations of Seattle, Washington, and Brig, Switzerland. This program provides specialized study of the major organizational and administrative problems of the hotel and restaurant industry. The program is intended to prepare graduates for the managerial opportunities available in the industry here and abroad. The curriculum provides for the well-rounded education of the hotel, restaurant, club, and institutional executive. It includes courses in the arts and sciences, economics, business administration, and foods, as well as in hotel and restaurant management. The course of study leads to the degree of Bachelor of Arts in Hotel and Restaurant Administration.

Certification Requirements

Pre-Hotel and Restaurant Administration (PreHA) Major Certification Requirements. Certification requirements for the pre-hotel and restaurant administration major include completion of 24 semester hours, 6 hours of which must be in Acctg 230, 231, B L.A. 210, Dec S 215, Econ 101, 102, Mgt 101, or MIS 150; a 2.0 cumulative g.p.a. and a 2.0 business g.p.a.

Hotel and Restaurant Administration (HA) Major Certification Requirements. To be eligible for certification as a major in hotel and restaurant administration, students must have earned at least 60 semester hours credit, including all of the following courses: Acctg 230, 231, B L.A. 210, Dec S 215, Econ 101, 102, Engl 101, Math 201, 202, MIS 150, and meet the current college/departmental g.p.a. requirements. All students are eligible to petition for the consideration of alternative criteria.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

All students majoring in hotel and restaurant administration must see their advisor and have a degree audit upon completion of 45 hours of credit. By the completion of 60 hours of credit, all students must have completed English, Math and 100-200-level CBE core courses. These required courses are Acctg 230, 231, B L.A. 210; Dec S 215, Econ 101, 102; Engl 101; Math 171 or 202 (Math 202 recommended); Math 172 or 201 (Math 201 recommended); MIS 150. Enrollment in 300-level CBE business and hotel courses is restricted to those students who have met these requirements and certified as HA majors.

All students majoring in hotel and restaurant administration must complete 50% of their course work outside of the College of Business and Economics. Nine hours of economics and four hours of Dec S 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/hotel courses must be taken in residence (classroom setting) at WSU; 3) The last 30 hours of course work must be taken at WSU; 4) A minimum of 9 hours of correspondence courses may be used to satisfy business/hotel course requirements.

The chair of the department and/or the dean of the college must approve in writing any portion of the 300-400-level credit which is to be satisfied by transfer, correspondence, independent study, or other credit which may not carry WSU grade points. 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 a course offered by the CBE may be taken pass, fail. An honors thesis is required for Honors students.
### Transfer Students
A student planning to transfer to hotel and restaurant administration from a two-year program should have made appropriate academic progress before transferring. In addition, the student should have 500 hours (one summer) of gainful employment in the hospitality industry. However, it is strongly advised that the student utilize both summers in related employment before entering WSU. Students may be admitted to the Seattle program if they are junior status and have completed the following classes: Acctg 230, 231, B Law 210, Dec S 215, Econ 101, 102, Math 201, 202, MIS 150. Qualified graduates of the International College of Hospitality Administration in Brig, Switzerland, may be admitted to the Swiss Center for HRA. Opportunities are available to all H A majors for a semester abroad at the Swiss Center.

### Description of Courses

#### Special Notice: Enrollment in 300-level hotel courses by non-hotel majors is restricted to students who have certified a major and have junior standing. Enrollment in 400-level hotel courses is open only to juniors and seniors officially certified into degree programs that require these hotel courses.

### Hotel and Restaurant Administration

#### HA 181 Introduction 3 Historical development and organizational structure of the hospitality service industries. Cooperative course taught by WSU, open to UI students (RcMgt/Rec 181).

#### HA 201 Quantity Food Production 3 Principles of menu writing, sanitation and food preparation applied to management of quantity food production and service.

#### HA 220 Introduction to Industry Experience 3 Preparation for work in hospitality/business organizations; resume writing, interview skills, use of Career Services, career dress. S, F grading.

#### HA 235 Principles of Tourism 3 Underlying principles and practices in domestic tourism. Cooperative course taught by WSU, open to UI students (RcMgt/Rec 181).

#### HA 280 Lodging Systems and Procedures 3 Management functions relating to the planning and operational policies of various hotel departments.

#### HA 301 Introduction to Conventions and Meetings Industry 3 Prereq junior standing. Overview of industry, including components, interrelationships, economics and theory.

#### HA 381 Hospitality Industry Financial Control 3 Prereq Acctg 231; junior standing. International control through financial and accounting systems for hotels and restaurants.

#### HA 384 Managed Services 3 Management systems of the segment of the hospitality industry relating to contract and self-operated management companies.

#### HA 386 Applied Industrial Relations 3 Prereq junior standing. Labor relations; history, organization, and elections of bargaining agents, negotiation, and administration of contracts.

#### HA 435 International Tourism 3 International and domestic tourism; effects of tourism on the society.

#### HA 440 Association Management 3 Prereq H A 301. Theory, organization, structure and management of voluntary associations; economics and role in convention industry.

#### HA 450 Convention Facilities Management 3 Prereq H A 301. Politics, site, design, construction, organization and management of public assembly facilities, including private structures.

#### HA 491 Operational Analysis 3 Prereq Mktg 360. Theory and practice; problems in guest relations, special sales efforts, intramural promotion, research.

#### HA 493 Case Studies and Research 3 Prereq H A 358, 480, 491. Use of the case method and computerized statistical programs in the analysis of administrative practices of organizations.
Students completing a human development emphasis or family emphasis degree are required to complete a certified minor in another department. A minor should be selected in consultation with a human development faculty advisor, preferably by the end of the third semester.

Both human development and family emphases provide preparation for graduate work leading to teaching, research, counseling, or administrative positions in social service, resource management, or pre-family therapy. The department also offers a Master of Arts degree in Human Development. More information is available from the graduate school.

The outline below describes a course of study leading to a degree of Bachelor of Arts in Human Development; with emphasis in either human development or family.

Additionally, two minors are offered: one in general human development and one in early childhood (see description below).

**Degree Program Requirements**

Honors students complete Honors Requirements in place of General Education Requirements.

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

**HUMAN DEVELOPMENT EMPHASIS OR FAMILY EMPHASIS DEGREE PROGRAMS (120 HOURS) ▶FYDA**

### Freshman Year

**First Semester**

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<td>Arts &amp; Humanities [H, G] (GER)</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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</tr>
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<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Social Sciences [S, K] (GER)¹</td>
<td>3</td>
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<tr>
<td>Science [B, P, Q] (GER)²</td>
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**Second Semester**

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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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<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>H D 201</td>
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<td>H D 204</td>
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**Sophomore Year**

**First Semester**

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<td>H D 203¹</td>
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<td>H D Elective</td>
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<td>Intercultural [I, G, K] (GER)</td>
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<td>Math Proficiency [N] (GER)</td>
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**Second Semester**

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<td>H D 310¹</td>
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<td>Minor Elective²</td>
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<td>Physical [P] Sciences (GER)</td>
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**Junior Year**

**First Semester**

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<tr>
<td>H D Elective</td>
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<tr>
<td>Minor Elective²</td>
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<tr>
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<tbody>
<tr>
<td>Electives</td>
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<td>Complete Writing Portfolio</td>
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**Second Semester**

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**Senior Year**

**First Semester**

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<td>Tier III Capstone (GER)</td>
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**Second Semester**

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<tbody>
<tr>
<td>H D 410 [M]</td>
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<tr>
<td>H D 446² or 498³</td>
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</tr>
<tr>
<td>Electives</td>
<td>6</td>
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</table>

¹ Psychology 105 [S] or Sociology 101 [S] are strongly recommended.
² FSHN 130 [B] is strongly recommended.
³ Courses are only offered during this semester each year.
⁴ A minor must be decided at the end of the third semester.
⁵ Students in the Human Development Emphasis should take H D 420 [M]; students in the Family Emphasis Program should take H D 320.
⁶ H D 446 requires a half-day each day, 5 days a week for a semester and can be put into the schedule anytime after taking H D 342.
⁷ The internship course (H D 498) can be taken during the summer semester of the junior or senior year. H D 330 should be taken no more than one to two semesters before taking the internship.

Students majoring in human development may choose to become certified in the State of Washington to teach in preschool through third grade (P-3), and kindergarten through eighth grade (K-8), or family and consumer sciences. They must fulfill course requirements specified by the State of Washington. Note that the certification programs available in human development are offered in conjunction with the WSU College of Education. Additionally, those teacher certification students who wish to have a supporting endorsement from the Department of Human Development must meet with the appropriate human development advisor to obtain the list of approved courses.

**FAMILY AND CONSUMER SCIENCES DEGREE PROGRAM (126 HOURS)**

### Freshman Year

**First Semester**

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<td>FSHN 130 [B] (GER)</td>
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<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>H D 201</td>
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<td>Math [N] (GER)</td>
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**Second Semester**

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<tr>
<td>H D 202¹</td>
<td>3</td>
</tr>
<tr>
<td>H D 204</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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<td>Psych 105 [S] (GER)</td>
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**Sophomore Year**

**First Semester**

<table>
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<tr>
<th>Course</th>
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<tbody>
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<td>AMT Elective</td>
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### Description of Courses

#### Human Development

**H D**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>H D 101</td>
<td>[S] Human Development Across the Lifespan</td>
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</table>

Overview of lifespan development from a psychosocial ecological perspective; individuals, families, organizations, and communities and their interrelationships.

**H D 201**

### Human Development - Prenatal Through Age 8

Overview of child development from conception through age 8 in context of family, community and society.

**H D 202**

### Human Development - Middle Childhood Through Adolescence

Overview of school-age child and adolescent; observation and volunteer experience; theories and application.

**H D 203**

### Human Development - Adulthood Through the Older Years

Overview of young adulthood through later years within the social context of family and community.

**H D 204**


Introduction to the study of family processes: family generational, emotional, boundary, rule, and ritualistic systems.

**H D 205**

### [C] Communication in Human Relations

(2-2) Developing an understanding of human behavior and learning skills in communication and leadership.

**H D 300**

### Child Abuse and Neglect

Prereq 6 hours in Anth, H D, Psych, or Soc. Eng 101. Overview of causes, identification, reporting, and treatment of children who are abused and/or neglected.

**H D 301**

### Families in Crisis

Prereq 6 hours in Anth, H D, Psych, or Soc. Examination of the nature and course of family crisis, using a family systemic approach, including principles used in intervention strategies.

**H D 302**

### [M] Parent-Child Relationships

Prereq 6 hours in Anth, H D, Psych, or Soc. Parenting in contemporary society with focus on reciprocity of parent-child relationships and diversity of families.

**H D 305**

### Gerontology

Prereq 6 hours in Anth, H D, or social sciences. Examination and analysis of social context of aging including public policy, implications of demographic shifts, and quality-of-life issues.

**H D 310**

### Research Approaches to Human Development

Prereq 6 hours in Anth, H D, Psych, or Soc. Overview of research techniques in human development; methods of evaluating research products.

**H D 320**

### Resource Management and Problem Solving

Prereq 6 hours in Anth, H D, Psych, or Soc. Styles of managing material, human and environmental resources with families; various approaches to problem solving with individuals and families.

**H D 330**

### Professional Preparation

Prereq 12 hours in Anth. Human service career preparation through: career exploration; relating students’ skills and educational plans to professional roles; cover letters; resumes; interviewing.

**H D 341**

### Learning and Guidance in Early Childhood

Prereq H D 101 or 201; 204. Theories of child guidance; understanding of child behavior; strategies and techniques for effective group and individual guidance of young children.

### Minors in General Human Development

Those wishing to minor in general human development must take the following courses (18 credit hours): H D 101, 201; 202 or 203; 204 and 6 additional 300-400-level H D credit hours.

**Minor in Early Childhood**

Students obtaining a degree in elementary education and wishing to obtain a supporting endorsement in early childhood must take the following courses: H D 101, 201, 204, 302, 341, 342, 449; plus one of: H D 403, 410, or 420.

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### Preschool through Third Grade (P-3) Certification Degree Program (135 Hours)

#### Freshman Year

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**Second Semester**

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<td>SpCom 102</td>
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#### Sophomore Year

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<td>Biological Sciences</td>
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**Second Semester**

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#### Junior Year

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**Senior Year**

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<td>T &amp; L 307</td>
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<tr>
<td>T &amp; L 320</td>
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<tr>
<td>T &amp; L 385</td>
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</tr>
<tr>
<td>T &amp; L 403</td>
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<tr>
<td>T &amp; L 483</td>
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1. Courses are only offered during this semester each year.

2. Chem 101 strongly recommended.


4. Econ 101 [S] or 201 [S] strongly recommended.
342 Curriculum for Early Childhood Programs 4 (3-3) Prereq H D 101, 201, 341. Planning and implementation of developmentally appropriate curriculum for use in programs serving young children.

345 Managing Behavior in Early Childhood Settings 3 Prereq H D 101 or 201, 204. Principles and strategies for management of children’s individual and group behavior in early childhood settings; professional and ethical responsibilities.

346 Middle Childhood and School Age Care 3 Prereq 6 hours in H D, Psych, or Soc. Understanding development in middle childhood (approximately 5-12 years); understanding and planning school age care programs.

350 [M] Diversity in Contemporary Families 3 Prereq 6 hours in H D or social science. 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 in Anth, H D, Psych, or Soc. Death and dying throughout life and in different contexts; manner of death, unresolved grief, legal and ethical considerations.

403 Families in Poverty 3 Prereq H D 101, 204; or 6 hours in H D or social sciences. Examining poverty in US and globally; description of groups most often poor; identification of effective solutions and successful interventions.

406 Work and Family 3 Prereq 6 hours in Anth, H D, Psych, or Soc. Issues related to work and family; workplace environments; fostering effective policy responses to family needs; role of work-family coordination. Credit not granted for both H D 406 and 506.

407 Directed Teaching, Agriculture and Home Economics V 4-10 Same as Ag Ed 407.

408 Advanced Adolescent Development 3 Prereq 6 hours in Anth, H D, Psych, or Soc. In-depth examination of theories and research; developmental issues and prevention and intervention programs for school-aged child and adolescent.

409 Current Consumer Issues 3 Prereq 6 hours in Anth, H D, Psych, or Soc. Analysis of the consumer role; ecological perspective; interaction of consumers, government, market; effects on communities, families, and individuals.

410 [M] Public Policy Issues Impacting Families and Individuals 3 Prereq 6 hours in Anth, H D, Psych, or Soc. Family policy issues in a changing society; ecological perspective; relationship of public policy to communities, organizations, families, and individuals.

420 [M] Application of Human Development Theories 3 Prereq 6 hours in Anth, H D, Psych, or Soc. In-depth examination of theories and their use in understanding individual development in context of family and community.

430 Professional Skills for Working with Individuals and Families 3 Prereq 3 hours in H D; junior standing. Development of skills important for effective human service professionals: communication, group dynamics, supervision, leadership, ethical behavior, cultural sensitivity, and others.

446 Practicum in Early Childhood Programs V 3 (0-9) to 6 (0-18) May be repeated for credit; cumulative maximum 12 hours. Prereq H D 341, 342. Teaching in department’s child development laboratory; emphasis on skill building in working with diverse groups and building partnerships with families.

449 Seminar in Early Childhood Education V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq H D 341, 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 Organization, administration, and management of early childhood programs; financing, program development, service delivery, personnel concerns, resource development, and evaluation. Available ONLY as a Distance Learning Flexible Enrollment Course.


482 Child Assessment and Evaluation 3 Prereq H D 201; 6 additional hours in H D. Understanding aspects of assessment and evaluation of young children; selection, administration, summary development, ethics and professional responsibilities, evaluation and follow-up.

485 Participation in Human Development Research V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 6 hours. Prereq 9 hours in H D; junior standing. Supervised participation in faculty research including data collection, analysis, literature review, preparation of findings. S, F grading.

487 Special Topics in Human Development V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq 6 hours in Anth, H D, Psych, or Soc. Assessment and evaluation of families and individuals.

495 Instructional Practicum V 1-4 May be repeated for credit; cumulative maximum 4 hours. By interview only. Opportunity to assist with instruction; experience in further study of topic, organization of material, grading, management of resources. S, F grading.

498 Field Placement V 4 (0-12) to 8 (0-24) May be repeated for credit; cumulative maximum 8 hours. By interview only. Prereq H D 330, Self-initiated, supervised work experience with appropriate private organizations, businesses, or government agencies; interaction with professionals in related fields. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

506 Work and Family 3 Graduate-level counter-part of H D 406; additional requirements. Credit not granted for both H D 406 and 506.

510 Proseminar in Human Development Intro to human development profession, departmental faculty and their research, WSU resources, conducting research, writing thesis; preparation for field placement.

511 Theory and Substance of Human Development 3 Prereq graduate standing. Human development theories; application to life span development and individual variations, resources, problem solving, interaction of families and individuals with other systems.

512 Theory and Substance of Human Development II 3 Prereq H D 511. Continuation of 511; theory and application to concepts and issues in human development.

513 Research Methods in Human Development I 3 Prereq graduate standing. Introduction to process of research and methods in human development; techniques of research, data collection, and data analysis procedures. Cooperative course taught by WSU, open to UI students (FCS 521).

514 Research Methods in Human Development II 3 Prereq H D 513. Integration of formal decision making into the social science research process; procedures appropriate for experimental, quasi-experimental and field research. Cooperative course taught by WSU, open to UI students (FCS 522).

515 Seminar 2 Prereq H D 510, 512, 514, 598 or c/l. Application of knowledge in professional settings, analysis and integration of internship experience with theoretical and substantive expertise.

520 Adolescence 3 Prereq graduate standing. In-depth examination of theories and research, developmental issues and prevention and intervention programs for school-aged child and adolescents.

535 Program Development in Child, Family, and Consumer Studies 3 Prereq graduate standing. Analysis and development of program delivery systems, curricula and evaluation models. Cooperative course taught by UI (FCS 554), open to WSU students.

540 Effective Intervention Programs 3 Prereq H D 530. Innovative effective prevention and intervention programs from theoretical, applied, and outcome evaluation perspectives.

550 Seminar on Family Relationships 3 Prereq graduate standing. Survey of family studies topics and issues examined from a research point of view.


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.

570 Families and the Economy 3 Prereq graduate standing. Family/household as an earning and consuming unit; theoretical and policy approaches to income and household production and consumer behavior.

575 Family Resource Management 3 Prereq graduate standing. Management of economic and human resources with focus on family structure in all socioeconomic and age groups. Cooperative course taught by UI (FCS 560), open to WSU students.

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 Advanced 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.
Humanities Courses

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 twentieth century. Most courses from this curriculum fulfill the Tier II GER [H] requirement in various areas of coherence; Hum 410 fulfills the Tier III requirement. English majors may elect 300-400-level Humanities courses within the concentration in world literature/humanities.

Using Humanities courses as part of General Studies-Humanities Major

WSU-Pullman students who are interested in the interdisciplinary study of culture can use a number of the courses listed below as a minor concentration in a degree program in General Studies-Humanities. A recommended sequence would include at least three from Hum 101, 302, 303, and 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. Students of branch campuses, who are interested in Humanities courses, including the study-abroad option, could elect 300-400-level Humanities courses within the concentration in world literature/humanities.

Interdisciplinary University Courses

Description of Courses

Universities

1. [H] Humanities in the Ancient World: Integrated humanities, literature, philosophy, history, and art of the ancient world.

2. [H] Mythology: The theory of mythology and use of myths in art, literature, and music; Graeco-Roman and one other.

3. [H] Humanities in the Ancient World: Honors: Integrated humanities, literature, philosophy, history, and art of the ancient world.7

221 Topics in Humanities—Study Abroad 3

222 Topics in Humanities—Study Abroad 3

302 (202) [M] Humanities in the Middle Ages and Renaissance: Exploring great works and themes of the European Middle Ages and Renaissance, including art, architecture, music, philosophy, and literature.

304 [H] Humanities in the Modern World: Literature, philosophy, art, architecture, film, music since World War I; major works reflecting influential movements and concerns of the modern world.

322 Topics in Humanities Study Abroad: 3

324 Topics in Humanities Abroad: 3

340 [H] American Findings: Examination of the differing assumptions about the nation in such founding texts as The Federalist Papers and Emerson’s Essays.

410 [H] Love in the Arts: Prereq completion of one Tier I and three Tier II courses in appropriate area of coherence. Concepts of love around the world and in history through literature, art, music, dance, and theater.

499 Special Problems: V 1–4

Department of Kinesiology and Leisure Studies

Degrees

The Department of Kinesiology and Leisure Studies offers two undergraduate degrees: the Bachelor of Science in Kinesiology and the Bachelor of Arts in Recreation Administration and Leisure Studies. These degrees offer opportunities for studying biological, physical, psychological, and social mechanisms contributing to human development as it relates to movement and leisure studies/services.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

Departmental Undergraduate Degrees

All letter-graded courses specifically required for each degree program must be taken for letter grade (i.e., not pass, fail). This applies to all students in the Bachelor of Science in Kinesiology and Bachelor of Arts in Recreation Administration and Leisure Studies.

BACHELOR OF SCIENCE IN KINESIOLOGY

The three kinesiology majors (athletic training, exercise science, and kinesiology) share core kinesiology and health courses. The kinesiology core is composed of a broad spectrum of courses designed to expose students to a variety of experiences, concepts, and philosophies. A grade of C or better must be obtained in all core courses. In addition, each major has a specialized curriculum designed to meet the requirements of the appropriate professional experience in which the student is interested.

Professional Core for the Bachelor of Science in Kinesiology

GER Courses. Specific to each major.


ATHLETIC TRAINING DEGREE PROGRAM (121 HOURS)

Accredited by the Commission on Accreditation of Allied Health Education Programs, the athletic training curriculum is designed to provide students with the necessary academic and clinical competence required to be certified by the National Athletic Trainers’ Association. All students majoring in athletic training will complete the kinesiology core, the athletic training major course work, and 1200 hours of clinical internship experience.

Because of curriculum accreditation regulations for student/faculty ratio, the program admits a limited number of students in the clinical internship. Application into the clinical internship occurs in the second semester of the freshman year. Academic requirements
for this application process include but are not limited to 1.) completion of H Ed 363, Kin 262, 266, and 2.) a minimum g.p.a. of 2.8. Students are advised to consult with athletic training advisors early in their academic careers for specific application procedures.

Internship experiences combine the theory and management of sport-related injury/illness under the direct supervision of certified athletic trainers. Twelve hundred hands-on clinical hours are arranged over five semesters within collegiate sport medicine centers. Students are expected to maintain high academic standards and clinical competence to remain a part of the athletic training student clinical staff. Specific policies and procedures governing the clinical experience are available through athletic training advisors.

### Freshman Year

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<th>Hours</th>
<th>Second Semester</th>
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### Junior Year

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<td>Kin 463</td>
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### Senior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
<th>Second Semester</th>
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### KINESIOLOGY DEGREE PROGRAM

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<td>FSHN 130 [B] (GER) or 233</td>
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<td>KIN 199</td>
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<td>GenEd 110 [A] (GER)</td>
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<td>Chem 102 [P] (GER)</td>
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</table>
Degrees: The department offers courses of study leading to a Bachelor of Arts in Recreation Administration and Leisure Studies. A Master of Arts degree is available for those wishing to pursue advanced degree work in Recreation Administration and Leisure Studies.

RECREATION ADMINISTRATION AND LEISURE STUDIES DEGREE PROGRAM (132 HOURS)

Bachelor of Arts in Recreation Administration and Leisure Studies

A National Recreation and Parks Association accredited degree program, the recreation administration and leisure studies curriculum is designed to provide a broad-based professional preparation to students entering the recreation and leisure service profession. All students majoring in RLS must complete a core program of general education and professional recreation administration and leisure studies requirements. Additionally, each student will design an area of concentration based on the student's professional goals.

Theory and practice are combined to prepare the student for employment in recreation administration and leisure services. A total of 1000 hours of documented practical experience is required of all RLS majors prior to their enrollment in RLS 491, Internship. A minimum of 180 hours of the 1000 hours are completed through credited practice. The remaining 820 hours may be accumulated through a variety of approved practical experiences. Field experiences may be paid or voluntary. No student will be allowed to begin the internship experience if that student's cumulative g.p.a. is less than the current grade point standard at the completion of that student's course of study.

At least 40 of the total hours required for the Bachelor of Arts degree in Recreation Administration and Leisure Studies must be in 300-400-level courses. To be eligible to certify as a recreation administration and leisure studies major, a student must have earned at least 30 semester hours of credit on graded course work and meet the current standards of 1.) cumulative g.p.a. or 2.) g.p.a. based on at least 15 hours of RLS core courses. Full details are available from the department. If the cumulative g.p.a. of a certified major in RLS falls below the current standard at any time after certification and the student becomes deficient under Academic Regulations 37, 38, or 39, that student will be decertified. Certification will be reinstated when the student's cumulative g.p.a. returns to the current standard and criteria established for recertification are met.

A grade of C or better must be obtained in all RLS professional core classes.

A major in RLS may secure a second degree by meeting the requirements of the subject-matter area and presenting not less than the 150 semester hours.

Second Semester

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Senior Year

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Second Semester

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### Bachelor of Arts in Recreation Administration and Leisure Studies

#### First Year

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<td>Soc 101 [S] or 102 [S] (GER)</td>
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#### Junior Year

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<td>Physical Sciences [P] (GER)</td>
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#### Senior Year

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<td>Complete Writing Portfolio</td>
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#### Transfer Students

Transfer students should note the sequence of professional requirements in specialized areas. Sequences are designed to provide progression from one course to another. For information regarding acceptability of professional courses taken at other institutions, prospective students should communicate with the departmental chair.

#### Preparation for Graduate Study

Admission to graduate study requires 1.) a bachelor’s degree in one of the fields represented in the department or an appropriate related field and 2.) evidence of ability to complete advanced academic work. Applicants without an appropriate undergraduate degree will be required to complete supplemental course work. Current graduate school admissions requirements govern department admissions decisions.

#### Description of Courses

PEACT These 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.

Credit. PEACT activity 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).

Courses are graded A, S, or F, except as noted.
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<th>Activity</th>
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<td>105</td>
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<td>106</td>
<td>Self Defense</td>
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<td>107</td>
<td>Beginning Judo</td>
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<td>108</td>
<td>Karate</td>
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</tbody>
</table>

### Physical Education Activity

<table>
<thead>
<tr>
<th>Activity</th>
<th>Prerequisites</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>274</td>
<td>Intermediate Skiing</td>
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</tr>
<tr>
<td>275</td>
<td>Advanced Skiing</td>
<td></td>
</tr>
<tr>
<td>281</td>
<td>Intermediate Roller Hockey</td>
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<tr>
<td>282</td>
<td>Competitive Roller Hockey</td>
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### Instructional Practicum

<table>
<thead>
<tr>
<th>Activity</th>
<th>Prerequisites</th>
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</tr>
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<tbody>
<tr>
<td>305</td>
<td>Nutrition Related to Fitness and Sport</td>
<td></td>
</tr>
<tr>
<td>266</td>
<td>Care and Prevention of Athletic Injuries</td>
<td></td>
</tr>
<tr>
<td>349</td>
<td>Advanced Athletic Injuries</td>
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</tr>
<tr>
<td>465</td>
<td>Medical Aspects of Athletic Injuries</td>
<td></td>
</tr>
<tr>
<td>466</td>
<td>Athletic Training Evaluation</td>
<td></td>
</tr>
<tr>
<td>467</td>
<td>[M] Athletic Training Rehabilitation</td>
<td></td>
</tr>
<tr>
<td>468</td>
<td>Athletic Training Modalities</td>
<td></td>
</tr>
<tr>
<td>469</td>
<td>[M] Athletic Training Organization and Administration</td>
<td></td>
</tr>
<tr>
<td>490</td>
<td>Instructional Practicum</td>
<td></td>
</tr>
<tr>
<td>491</td>
<td>Athletic Training Clinical Internship</td>
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<td>492</td>
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<td>493</td>
<td>Athletic Training Clinical Internship</td>
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<tr>
<td>499</td>
<td>Special Problems</td>
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### Kinesiology

<table>
<thead>
<tr>
<th>Activity</th>
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<tr>
<td>361</td>
<td>Health and Wellness</td>
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<tr>
<td>363</td>
<td>First Aid</td>
<td></td>
</tr>
<tr>
<td>463</td>
<td>Methods of First Aid Instruction</td>
<td></td>
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<tr>
<td>490</td>
<td>Instructional Practicum</td>
<td></td>
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<tr>
<td>496</td>
<td>Special Topics</td>
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<td>499</td>
<td>Special Problems</td>
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### Health Education

<table>
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<th>Notes</th>
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<tbody>
<tr>
<td>361</td>
<td>Health and Wellness</td>
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</tbody>
</table>
390 Practicum in Coaching 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.

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. S, F grading.

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.

415 Assessment 3 (2-3) Prereq senior in KLS. Program evaluation of human techniques for curricular pertaining to human movement.

461 [M] Motor Skill Acquisition 3 Motor learning and motor control areas; neural mechanisms, practice, feedback, retention, and transfer application of theoretical concepts.

463 Physiology of Exercise 4 (3-3) Prereq Kin 262 or Zool 315; Zool 251. Basic physiological responses of human subjects to the stresses of exercise and training.

470 Exercise Science Laboratory Techniques 2 (0-6) Prereq Kin 463. Routine exercise physiology and laboratory techniques.


475 Marginality and Movement 3 Understanding of the current status of women's sports participation in the U.S. and of the woman participant herself.

476 Exercise Testing and Prescription 3 (2-3) Prereq Kin 463. Principles of exercise testing and prescription based on current practices in physical education, physiology and rehabilitation. Credit not granted for both Kin 476 and 568.

481 Analysis of Human Movement 3 (2-3) Development of knowledge and skills which assist the physical education teacher in planning for and responding to student skill learning.

483 Management and Methods of Teaching Physical Education 3 (2-3) Prereq Kin 481 or eq. Management and control, teaching styles, methods, lesson design, discipline, with application in teaching labs. Cooperative course taught by WSU, open to UI students (PE 320, 321).

484 Principles of Movement for Individuals with Disabilities 3 Knowledge, understanding, and skills for teaching movement activities to individual with disabilities.

490 Instructional Practicum V 1-4 May be repeated for credit; cumulative maximum 6 hours. S, F grading.

491 Internship V 8-12 Supervised practicum in agency or business. S, F grading.

496 Special Topics 1 May be repeated for credit; cumulative maximum 4 hours. Physical education, leisure, recreation, dance, health sports.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Trends and Issues in Kinesiology 3 May be repeated for credit; cumulative maximum 6 hours. Exploration of trends and issues in kinesiology.

511 Assessment and Evaluation of Motor Dysfunction 3 Principles of assessment/evaluation of motor dysfunction; tools and techniques; administration, interpretation, and translation into program plans. Cooperative course taught by WSU, open to UI students (PEP 551).

552 Neurological Impairment and Motor Behavior 3 Neurophysiological components of normal and abnormal motor behavior as a result of neurological impairments/dysfunction in children through the aged. Cooperative course taught by WSU, open to UI students (PPE 552).

553 Programming in Adapted Physical Activity 3 Intensive experiences in planning and implementing physical activity programs to include disabled individuals in urban, rural, integrated and segregated settings. Cooperative course taught by WSU, open to UI students (PPE 553).

554 Sport and Individuals with Disabilities 3 Issues and opportunities in sport for individuals with disabilities. Cooperative course taught by WSU, open to UI students (PPE 554).

560 Epidemiology, Exercise and Health 3 Prereq graduate standing. Epidemiological approach to the study of health benefits/risks of exercise in youth, adults, women and ethnic groups.

562 Pediatric Exercise Physiology 3 Rec Kin 463. Influences of physical development on physiological responses of children and adolescents to exercise and training.

563 Exercise and Immune Response 3 Rec Kin 463. Influence of physical exercise on immune response and consequent impact on host susceptibility to disease and infection.

564 Mechanical Analysis of Motor Activity 3 Prereq Kin 362. Fundamental laws of mechanics applied to motor activities. Cooperative course taught by WSU, open to UI students (PE 564).

565 Advanced Physiology of Exercise I 3 Rec Kin 463. Bioenergetic, striated muscle metabolic, and neuroendocrine responses to exercise and training.

566 Biomechanics 3 Prereq Kin 564. Biological and mechanical aspects of human movement. Cooperative course taught by WSU, open to UI students (PE 566).

567 Advanced Physiology of Exercise II 3 Rec Kin 463. Pulmonary, circulatory, thermoregulatory, fluid balance and physiological system integration responses to exercise and training.

568 Fitness Assessment and Prescription 3 Prereq Kin 463. Development of skills in testing analysis, and prescription for health-related fitness. Credit not granted for both Kin 476 and 568. Cooperative course taught by UI (PE 593), open to WSU students.

573 Philosophical Perspectives of Sport and Physical Activity 3 Ontological, ethical, aesthetic views of physical activity.

574 Social and Cultural Issues of Physical Activity and Sport 3 Exploration, analysis and understanding of human movement in the context of the individual, cultural, and physical environments.

578 Sports in Society 3 The social significance of sports; sociology of sport research.

579 Psychology and Physical Activity 3 Current research findings in psychology pertinent to the teaching and coaching of physical activities.


582 Observation and Analysis of Teaching Physical Activity 3 (2-3) Systematic approach to observation and analysis of teaching physical activity; evaluation of instructional process. Cooperative course taught jointly by WSU and UI (PEP 522).

583 Teaching Strategies in Physical Activity 3 Research materials and methods related to effective teaching in physical education.

585 Curriculum Development in K-12 Physical Education 3 Principles of curriculum construction and the process of curricular development. Cooperative course taught jointly by WSU and UI (PE 544).


589 Research Techniques 2 (1-3) or 3 (2-3) Application and use of research techniques and tools in physiology of exercise.

590 Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Internship in educational, industrial, municipal or private sports or recreational setting; direct participation in tasks, research and reporting activities. S, F grading.

591 Motor Learning 3 Learning theory, learning models, and experimental evidence related to learning of perceptual-motor skills.

592 Perceptual-Motor Development 3 Physical growth and perceptual-motor development.

594 Educational Internship V 2-9 May be repeated for credit; cumulative maximum 9 hours. Internship in educational setting; direct participation in tasks, research, planning, activity controlling and reporting. S, F grading.

596 Seminar I or 2 May be repeated for credit.

597 College Teaching: Physical Education 1 (0-3) May be repeated for credit; cumulative maximum 4 hours. By interview only. Supervised experience in college teaching. S, F grading.

598 Methods of Research 3 Application of the scientific approach to research in physical education, sport and leisure.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Recreation and Leisure Studies

RLS 110 Recreation for Special Populations 3 History, etiology, characteristics, services, resources, professional competencies and opportunities; recreation programs. Credit not granted for both RLS 110 and 383. Cooperative course taught by UI (Rec 110), open to WSU students.

221 Outdoor Recreation 2 (1-3) Analysis of activities equipment, safety, environmental impact, and skills basic to outdoor recreation.

229 Nature and the American Experience 1-6 May be repeated for credit; cumulative maximum 6 hours. Study of nature writings and the integration of these writings with natural setting observations.

230 Principles of Therapeutic Recreation 3 Prereq RLS 110. Philosophy, design, and development of recreation programs for persons with disabling conditions; theory and rationale of therapeutic recreation. Cooperative course taught by UI (Rec 250), open to WSU students.
Leisure in Society 3 The leisure movement in society; history, philosophies, trends; socioeconomic values; professional responsibilities within governmental and nongovernmental agencies.

Recreation Activities 2 (1-3) Development of theories, knowledge, and skills in a variety of recreation activities.

Recreational Leadership 3 (2-3) Theories and techniques of leadership.

American Outdoor Recreation Areas V 1-6 May be repeated for credit; cumulative maximum 6 hours. Field study and readings in outdoor recreation administrative, managerial, and planning practices.

Introduction to Youth Sports 2 Coaching philosophy; sport psychology, conditioning, and pedagogy; physiology; legal aspects; recreational youth sports programs.

Social Psychology of Leisure and Recreation 3 Prereq Psych 105, Soc 101 or 102; RLS 275, 285; certified major in RLS. Presentation, interpretation and discussion of research and literature related to the social psychological aspects of leisure and recreation.

Therapeutic Recreation Programs for People with Disabilities 3 Prereq RLS 110. Prevalent disabling conditions (including etiology, symptomatology, and characteristics), and their implications for programming intervention in clinical settings. Field trip required. Cooperative course taught by UI (Rec 330), open to WSU students.

Commercial Recreation 3 Prereq RLS 275, 285. Identification, organization, and functions of the various types of commercial recreation businesses; marketing recreation and leisure services.

Therapeutic Recreation in Psychiatric Settings 3 Prereq 10 hours outside experience. Therapeutic recreation delivery in psychiatric settings, including long-term settings such as state hospitals, acute inpatient psychiatric settings, and community mental health centers; major psychiatric disorders, how to work as a part of an interdisciplinary team, and the viable role of recreation in the treatment process. Cooperative course taught by UI (Rec 342), open to WSU students.

Assessment and Evaluation in Therapeutic Recreation 2 Standardized assessment and evaluation tools currently used in therapeutic recreation services; integration of assessment practices into therapeutic recreation programs and how to choose standardized tools appropriate to both client and professional setting; practical assessment situations. Cooperative course taught by UI (Rec 341), open to WSU students.

Recreation for the Elderly 3 Recreation program for the elderly based on aging process, cultural influences, and psychological and social aspects. Cooperative course taught by UI (Rec 365), open to WSU students.

Wildland Recreation 3 Same as NATRS 371.

Recreation Programming 3 (2-3) Prereq RLS 285; certified major in RLS. Current principles and practices in recreation programming.

Therapeutic Recreation Service 3 Prereq RLS 285. Foundations for therapeutic recreation services; recreation activities for special populations, people with disabilities and older adults. Credit not granted for both RLS 110 and 383.


Practicum in Commercial Recreation 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.

Practicum in Municipal/Agency 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.

Practicum in Parks/Facilities 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.

Practicum in Therapeutic Recreation 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.

Practicum in Recreation/Leisure Research V 1 (0-3) to 4 (0-12) By interview only. May be repeated for credit; cumulative maximum 8 hours. Supervised practicum.

Medical Terminology 1 Basic concepts of medical terminology and symbols related to working with people with disabilities. Cooperative course taught by UI (Rec 431), open to WSU students.

Comprehensive Planning and Operations in Leisure Services 3 Prereq RLS 321, 375. Techniques and problem solving in the planning and operation of leisure services. Credit not granted for both RLS 435 and 535.

Therapeutic Recreation for People with Developmental Disabilities 3 Prereq RLS 110. Programming models for people with developmental disabilities; TR intervention from developmental sequencing to community reintegration; assessment and treatment planning incorporated into lab experience. Field trip required. Cooperative course taught by UI (Rec 467), open to WSU students.

Physical Education for Grades K-8 2 (1-3) Same as Kin 473.

Leisure Services Administration I 3 Prereq RLS 375. Financing and organizing leisure services, with attention to public recreation agencies.

Leisure Services Administration II 3 Prereq RLS 375. Principles underlying the organization, management and administration of leisure service delivery systems.

Recreation Law and Risk Management 3 Prereq RLS 375. Legal issues relating to park and recreation administration and programming; risk management planning and implementation in park and recreation settings. Credit not granted for both RLS 482 and 582. Cooperative course taught by WSU, open to UI students (REC 482).

Principles of Movement for Individuals with Disabilities 3 Same as Kin 484.


Instructional Practicum V 1-4 May be repeated for credit; cumulative maximum 6 hours. Same as Kin 490. S, F grading.

Internship V 10-12 Prereq RLS 481, 488; 1000 hours practical experience. By interview only. Supervised practicum in agency or business. S, F grading.

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

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

Special Problems V 1-4 May be repeated for credit. S, F grading.

Current Trends in Leisure Services 1 Historical development and possible outcomes of current trends and issues in leisure services.

Program Development and Supervision 3 Leisure programming process including development and evaluation techniques; application of programming theory to the supervision of programs.

Administrative Perspectives 3 Administrative problems: communication skills; public relations, personnel motivation and management; interagency cooperation; community economic, political, and social environment. Cooperative course taught by WSU, open to UI students (Rec 522).

Assessment of Youth at Risk 2 Identification and administration of instruments used to identify youth at risk in educational, recreational, and community settings.

Administering the Recovery of Youth at Risk 2 Identification and administration of programs and delivery systems that best serve the needs of at-risk youth.

Adventure Programming for Youth at Risk 2 (1-3) Development of adventure models, risk management consideration, activities and experiences for youth at risk. Field trip required.

Commercial Recreation Operations 3 Development potential, capital and managerial requirements, facility development, and sources of technical assistance.

Historical and Philosophical Analysis of Leisure 3 Past and current literature related to objectives and methods of recreation; analysis of philosophical beliefs. Cooperative course taught by WSU, open to UI students (Rec 529).

Urban Outdoor Recreation 3 Problems, methods, and techniques of providing outdoor recreation opportunities in urban settings.

Social Psychological Perspectives of Leisure 3 Prereq graduate standing. Social psychological aspects of leisure and human development, leisure behavior, and methods of social psychological inquiry.

Comprehensive Planning and Operations in Leisure Services 3 Graduate-level counterpart of RLS 435; additional requirements. Credit not granted for both RLS 435 and 535.

Recreation Law and Risk Management 3 Graduate-level counterpart of RLS 482; additional requirements. Credit not granted for both RLS 482 and 582. Cooperative course taught by WSU, open to UI students (REC 582).

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1Combined maximum for Kin and RLS 300-level practicum courses 8 hours.
590 Internship V 3 (0-9) to 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. By interview only. Internship in educational, industrial, municipal or private sports or recreational setting; direct participation in tasks, research and reporting activities. S, F grading.

594 Sport and Recreation Budget and Finance 3 Policies and practices involved in acquisition control and financial management in sport and recreation agencies. Cooperative course taught by UI (Rec 594), open to WSU students.

596 Seminar 1 May be repeated for credit; cumulative maximum 3 hours. Topics related to recreation and leisure studies and service.

597 Computer Applications 3 Focus on computer applications in recreation/leisure field; specialized software packages for registration, scheduling, budgeting, league operations; production of schedules, registration forms. Cooperative course taught by UI (Rec 597), open to WSU students.

598 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq RLS major.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

Liberal Arts Courses

Description of Course

Liberal Arts Lib A

497 Extended Degree Program Internship V 2-16 May be repeated for credit; cumulative maximum 16 hours. Prereq junior standing. Extended Degree Program student participation as paid or unpaid intern in a government unit or a non-profit organization.

Program in Materials Science


Materials science includes the principles and practice of designing, synthesizing, characterizing, preparing, and fabricating useful materials. The Materials Science Program accepts qualified bachelor’s and master’s graduates in the sciences and engineering who now wish to pursue graduate research for a PhD in the area where the disciplines overlap. A broad range of topics is included under this program and it is usual for students to select one of the following tracks within materials science.

The CHEMICAL PHYSICS track emphasizes condensed matter and atomic and molecular physics and chemistry, including application of spectroscopy to synthesis, irradiation effects at surfaces, thin film phenomena, and layered and atomic structures.

The MATERIALS ENGINEERING track emphasizes the methodology and principles relating the structure of metals, polymers, and ceramics to their mechanical, physical, and chemical properties and their utilization.

The MATERIALS PHYSICS AND CHEMISTRY track emphasizes applications of condensed matter, atomic and molecular physics and chemistry to improve understanding of the processing and characterization of materials. Students who plan a career in materials science are expected to obtain a strong foundation in mathematics, physics, and chemistry.

Requirements for the Materials Science PhD include a minimum of 72 credit hours of which at least 34 hours are graded course work. The common ground for all participants in materials science is covered by the core of courses (16-18 hours) required of all students: thermodynamics, statistical mechanics, solid state physics, phase transformations, microscopy and spectroscopy, and a survey of current topics in materials science. All students must attend the materials science seminar program. Additional required courses (23 hours or more) vary with the chosen track and the research programs of individual students. In the chemical physics track students are required to study quantum mechanics, atomic and molecular physics, atomic and molecular phenomena, and group theory which should be supplemented with a selection from advanced chemistry, physics and materials engineering courses. In the materials engineering track the required courses are mechanical properties and applied mathematics to be supplemented with selected materials science engineering and related courses. In the materials physics and chemistry track students must take quantum mechanics which should be supplemented by advanced courses in chemistry, engineering, and physics.

An original research dissertation (Mat S 800) is required. 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.

513 Crystal Plasticity 3 Same as MSE 513.

516 Phase Transformations 3 Same as MSE 516.

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.

590 Seminar 1 May be repeated for credit; cumulative maximum 3 hours. Same as MSE 520.

600 Special Projects or Independent Study Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Department of Pure and Applied Mathematics


The Department of Pure and Applied Mathematics provides undergraduate instruction and training in all major fields of mathematics. The numerous service courses taught by the department reflect the growing importance of mathematics in an increasing number of other disciplines.

Undergraduate training for mathematics majors is provided at WSU in the following seven options: Actuarial Science, Applied Statistics, Computational Mathematics, Mathematical Modeling, Operations Research, Secondary Mathematics Teaching, and Theoretical Mathematics. The first six options prepare students for careers related to the respective fields, while the option in Theoretical Mathematics is the traditional curriculum for Mathematics majors. Talented undergraduate majors in mathematics are given individual and small group instruction outside of class, sometimes resulting in research publications.

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.

Graduate study and specialization are offered by the department in both classical and modern areas. The Doctor of Arts and the PhD with Teaching Emphasis programs are specially designed for future college teachers, while the several options in applied mathematics, which include an internship experience, provide graduate preparation for mathematical careers in business and industry.

The Mathematics Department runs the Newton Microcomputer Laboratory where a variety of computers is available for students to do assignments in both basic and advanced courses. In addition, research is conducted using a wide variety of machines available to faculty and students.

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 and a Spitz planetarium. Opportunities are available for students to collaborate with faculty to do research projects with the 3.5 m Apache Point Telescope which can be operated remotely from the WSU campus.

Entering freshmen are required to take the mathematics placement test for enrollment in basic courses.

The department offers courses of study leading to the degrees of Bachelor of Science in Mathematics, Master of Science in Mathematics (with an Applied Mathematics option), Doctor of Arts, Doctor of Philosophy, and Doctor of Philosophy with Teaching Emphasis.
# Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

There is a core of requirements common to all of the mathematical sciences options. Students are required to take the core courses and to complete one of the degree programs listed below.

A major in mathematics requires Math 171, 172, 220, 273, 315; 360 or 443; 398, 401, 402, 420, 421; Phys 201. Cpt S 203, Engl 402 (students whose native language is not English may substitute Engl 403 or 402). Hist 381 and 382 are strongly recommended for partial satisfaction of the GER requirements.

## FIRST SEMESTER REQUIREMENTS

The first semester requirements are common to all mathematics degree programs:

### Freshman Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td>Bio S 102 [B] (GER)</td>
<td>4</td>
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<tr>
<td>First Semester</td>
<td>Degree Program Course, if necessary</td>
<td>2 or 3</td>
<td></td>
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<tr>
<td>First Semester</td>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
<td></td>
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<tr>
<td>First Semester</td>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
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<tr>
<td>First Semester</td>
<td>Math 171 [N] (GER)</td>
<td>4</td>
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</table>

1 Students in Actuarial Science take Econ 101 [S] (GER); students in Computation Mathematics take Cpt S 203.

### ACTUARIAL DEGREE PROGRAM (122 HOURS)

#### Freshman Year

<table>
<thead>
<tr>
<th>Semester</th>
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<th>Course Title</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>Second Semester</td>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Second Semester</td>
<td>Cpt S 203</td>
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<tr>
<td>Second Semester</td>
<td>Econ 101 [S] (GER)</td>
<td>3</td>
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<tr>
<td>Second Semester</td>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
<td></td>
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<tr>
<td>Second Semester</td>
<td>Math 172</td>
<td>3</td>
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#### Sophomore Year

<table>
<thead>
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<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>First Semester</td>
<td>Arts &amp; Humanities [H,G]</td>
<td>3</td>
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<tr>
<td>First Semester</td>
<td>Social Sciences [S,K] (GER)</td>
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<tr>
<td>First Semester</td>
<td>Foreign Language, if necessary, or Elective</td>
<td>4</td>
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<tr>
<td>First Semester</td>
<td>Math 220</td>
<td>2</td>
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<tr>
<td>First Semester</td>
<td>Math 273</td>
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<tr>
<td>First Semester</td>
<td>Phys 201 [P] (GER)</td>
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#### Junior Year

<table>
<thead>
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<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td>Biological Sciences [B] (GER)</td>
<td>4</td>
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<tr>
<td>First Semester</td>
<td>Intercultural [I,G,K] (GER)</td>
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<tr>
<td>First Semester</td>
<td>Math 315</td>
<td>3</td>
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<td>First Semester</td>
<td>Math 360</td>
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<tr>
<td>First Semester</td>
<td>Complete Writing Portfolio</td>
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#### Senior Year

<table>
<thead>
<tr>
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<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>First Semester</td>
<td>Engl 402 [W] (GER)</td>
<td>3</td>
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<tr>
<td>First Semester</td>
<td>Math 401 [M]</td>
<td>3</td>
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<tr>
<td>First Semester</td>
<td>Tier III Capstone (GER)</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

### APPLIED STATISTICS DEGREE PROGRAM (124 HOURS)

#### Freshman Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second Semester</td>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Second Semester</td>
<td>Cpt S 203</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Second Semester</td>
<td>Foreign Language, if necessary, or Elective</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Second Semester</td>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Second Semester</td>
<td>Math 172</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

#### Sophomore Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td>Arts &amp; Humanities [H,G] or</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>First Semester</td>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>First Semester</td>
<td>Foreign Language, if necessary, or Elective</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>First Semester</td>
<td>Math 220</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>First Semester</td>
<td>Math 273</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>First Semester</td>
<td>Phys 201 [P] (GER)</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

#### Junior Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td>Biological Sciences [B] (GER)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>First Semester</td>
<td>Intercultural [I,G,K] (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>First Semester</td>
<td>Math 315</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>First Semester</td>
<td>Math 360</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>First Semester</td>
<td>Complete Writing Portfolio</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

#### Senior Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td>Engl 402 [W] (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>First Semester</td>
<td>Math 401 [M]</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>First Semester</td>
<td>Math 402 [M]</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>First Semester</td>
<td>Tier III Capstone (GER)</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

---

1 Strongly recommended. If not taken, another Social Science [S,K] or Arts & Humanities [H,G] must be taken.

2 Strongly recommended.
Electives 9


**SECONDARY MATHEMATICS TEACHING DEGREE PROGRAM (135 HOURS)**

### Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cpt S 153</td>
<td>2</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 172</td>
<td>3</td>
</tr>
<tr>
<td>Math 220</td>
<td>2</td>
</tr>
</tbody>
</table>

### Sophomore Year

**First Semester**

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER) 3</td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER) 3</td>
</tr>
<tr>
<td>Foreign Language, if necessary, or Elective 4</td>
</tr>
<tr>
<td>Math 273</td>
</tr>
<tr>
<td>Phys 201 [P] (GER)</td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological Sciences [B] (GER) 4</td>
</tr>
<tr>
<td>Intercultural [I,G,K]</td>
</tr>
<tr>
<td>Math 315</td>
</tr>
<tr>
<td>Math 360</td>
</tr>
<tr>
<td>T &amp; L 301</td>
</tr>
</tbody>
</table>

### Junior Year

**First Semester**

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 201 [W], 301 [W], or 302 [W] 3</td>
</tr>
<tr>
<td>Dec 542</td>
</tr>
<tr>
<td>Math 401 [M]</td>
</tr>
<tr>
<td>T &amp; L 303</td>
</tr>
<tr>
<td>Elective 3</td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER) 3</td>
</tr>
<tr>
<td>Math 303 [M]</td>
</tr>
<tr>
<td>Math 398</td>
</tr>
<tr>
<td>T &amp; L 317/318</td>
</tr>
<tr>
<td>T &amp; L 328</td>
</tr>
<tr>
<td>T &amp; L 450/451</td>
</tr>
</tbody>
</table>

### Senior Year

**First Semester**

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>300-400-level Elective 3</td>
</tr>
<tr>
<td>Ed Psych 402</td>
</tr>
<tr>
<td>Hist 381 [S] (GER)</td>
</tr>
<tr>
<td>Math 330</td>
</tr>
<tr>
<td>T &amp; L 404</td>
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</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hist 382 [S] (GER)</td>
</tr>
<tr>
<td>Math 320 [M] or 421 [M]</td>
</tr>
<tr>
<td>Tier III Capstone (GER)</td>
</tr>
<tr>
<td>Electives 6</td>
</tr>
</tbody>
</table>

**Directed Teaching**

T & L 415 16


### Sophomore Year

**First Semester**

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER) 3</td>
</tr>
<tr>
<td>Biological Sciences [B] (GER) 4</td>
</tr>
<tr>
<td>Cpt S 203</td>
</tr>
<tr>
<td>Hist 381 [S] (GER)</td>
</tr>
<tr>
<td>Math 273</td>
</tr>
<tr>
<td>Math 398</td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hist 382 [S] (GER)</td>
</tr>
<tr>
<td>Intercultural [I,G,K]</td>
</tr>
<tr>
<td>Math 315</td>
</tr>
<tr>
<td>Math 360 or 443</td>
</tr>
<tr>
<td>Math 420</td>
</tr>
</tbody>
</table>

### Junior Year

**First Semester**

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER) 3</td>
</tr>
<tr>
<td>Math 375 or 415</td>
</tr>
<tr>
<td>Math 401 [M]</td>
</tr>
<tr>
<td>Math 421 [M]</td>
</tr>
<tr>
<td>Math 441</td>
</tr>
<tr>
<td>Complete Writing Portfolio</td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 402 [W] (GER)</td>
</tr>
<tr>
<td>Foreign Language, if necessary, or Elective 4</td>
</tr>
<tr>
<td>Math 402 [M]</td>
</tr>
<tr>
<td>Electives 6</td>
</tr>
</tbody>
</table>

### Senior Year

**First Semester**

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign Language, if necessary, or Elective 4</td>
</tr>
<tr>
<td>Two from: Math 302, 303, 325, 453, 464</td>
</tr>
<tr>
<td>Electives 5</td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>300-400-level Math Electives 6</td>
</tr>
<tr>
<td>Tier III Capstone (GER)</td>
</tr>
<tr>
<td>Electives 6</td>
</tr>
</tbody>
</table>


**THEORETICAL MATHEMATICS DEGREE PROGRAM (122 HOURS)**

### Freshman Year

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
</tr>
<tr>
<td>Math 172 [N] (GER)</td>
</tr>
<tr>
<td>Math 220</td>
</tr>
<tr>
<td>Phys 201 [P] (GER)</td>
</tr>
</tbody>
</table>

### Sophomore Year

**First Semester**

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER) 3</td>
</tr>
<tr>
<td>Biological Sciences [B] (GER) 4</td>
</tr>
<tr>
<td>Cpt S 203</td>
</tr>
<tr>
<td>Hist 381 [S] (GER)</td>
</tr>
<tr>
<td>Math 273</td>
</tr>
<tr>
<td>Math 398</td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hist 382 [S] (GER)</td>
</tr>
<tr>
<td>Intercultural [I,G,K]</td>
</tr>
<tr>
<td>Math 315</td>
</tr>
<tr>
<td>Math 360 or 443</td>
</tr>
<tr>
<td>Math 420</td>
</tr>
</tbody>
</table>

### 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 and at the Student Advising and Learning Center (SALC), Lighty 260.
2. Applications are evaluated, and certification decided, by a faculty committee.
3. Applicants must have an overall grade point average of at least 2.0.
4. The mathematics core consists of Math 171, 172, 202. This core (or its equivalent for transfer students) must be completed before application.
5. Students with at least a 2.5 grade point average in the mathematics core will be certified automatically. Those with less than a 2.0 g.p.a. 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 grade point average or grade point average 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.
10. Women and minorities are encouraged to apply. Special consideration will be given to affirmative action candidates.

### Mathematics Minor

A mathematics minor requires 18 hours, with at least 9 hours of 300-400-level credits (excluding Math 330, 351, 431, 497). The g.p.a. requirements for the major (see graduation requirements) also apply to the minor in mathematics.

Courses required for either the major or minor may not be taken pass, fail.

#### Preparation for Graduate Study

As preparation for work toward an advanced degree in mathematics, a student should have completed the equivalent of the above schedule of studies. Adequate opportunities are provided for removing deficiencies through the taking of appropriate courses. Students who contemplate undertaking studies leading to a doctoral degree should contact the department for advice and assistance in the development of their plans.

### Description of Courses

#### Mathematics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Prerequisites</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 101 Intermediate Algebra</td>
<td>3</td>
<td>Prereq appropriate math placement score. Fundamental algebraic operations and concepts.</td>
<td>3</td>
<td>Calculus of sets and sequences of real numbers; limits, continuity, differentiation and integration of functions; metric spaces.</td>
</tr>
<tr>
<td>Math 107 Elementary Functions</td>
<td>4</td>
<td>Prereq Math 101 or satisfactory math placement score.</td>
<td>4</td>
<td>Functions, properties, and applications of polynomial, rational, exponential, logarithmic, and trigonometric functions.</td>
</tr>
<tr>
<td>Math 140 Mathematics for Life Scientists</td>
<td>4</td>
<td>Prereq Math 107, or satisfactory math placement score.</td>
<td>4</td>
<td>Differential and integral calculus with emphasis on life science applications. Credit normally not granted for more than one of Math 140, 171, 202, 206.</td>
</tr>
<tr>
<td>Math 171 Calculus I</td>
<td>4</td>
<td>(3-3) Prereq Math 107, or satisfactory math placement score.</td>
<td>4</td>
<td>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.</td>
</tr>
<tr>
<td>Math 172 Calculus II</td>
<td>4</td>
<td>(3-3) Prereq Math 171.</td>
<td>4</td>
<td>Techniques and applications of one-variable calculus; estimations; series, derivative of a vector function.</td>
</tr>
<tr>
<td>Math 201 Introduction to Finite Mathematics for Business and Economics</td>
<td>3</td>
<td>Prereq Math 101 or satisfactory math placement score.</td>
<td>3</td>
<td>Basic notions of logic, linear algebra, matrices and analytic geometry; applications to linear programming. Credit not normally granted for both Math 201 and 220.</td>
</tr>
<tr>
<td>Math 202 Introduction to Mathematical Analysis for Business and Economics</td>
<td>3</td>
<td>Prereq Math 107, or satisfactory math placement score.</td>
<td>3</td>
<td>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.</td>
</tr>
<tr>
<td>Math 205 Statistical Thinking</td>
<td>3</td>
<td>Prereq Math 101 or satisfactory math placement score.</td>
<td>3</td>
<td>Scientific explanation; correlations and causality; presenting statistical evidence; graphical and numerical methods; chance and gambling; the bell-shaped distribution.</td>
</tr>
<tr>
<td>Math 206 Mathematical Analysis for Architects</td>
<td>3</td>
<td>Prereq Math 107, or satisfactory math placement score.</td>
<td>3</td>
<td>Calculus of elementary functions; trigonometry; applications to architects. Credit not normally granted for more than one of Math 140, 171, 202, 206.</td>
</tr>
<tr>
<td>Math 210 Introduction to Mathematics</td>
<td>3</td>
<td>Prereq Math 101 or satisfactory math placement score.</td>
<td>3</td>
<td>Nature and scope of modern mathematics, relationships to other disciplines.</td>
</tr>
<tr>
<td>Math 212 Introduction to Statistical Methods</td>
<td>4</td>
<td>(3-3) Same as Stat 212.</td>
<td>4</td>
<td>Calculus of sets and sequences of real numbers; limits, continuity, differentiation and integration of functions; metric spaces.</td>
</tr>
<tr>
<td>Math 220 Discrete Structures</td>
<td>3</td>
<td>Prereq Math 107 and a programming course.</td>
<td>3</td>
<td>Discrete mathematics, trees, graphs, elementary logic, and combinatorics with application to computer science.</td>
</tr>
<tr>
<td>Math 220 Introductory Linear Algebra</td>
<td>2</td>
<td>Prereq Math 171 or c/.</td>
<td>2</td>
<td>Elementary linear algebra with geometric applications. Credit not normally granted for both Math 201 and 220.</td>
</tr>
<tr>
<td>Math 251 Mathematics for Elementary School Teachers I</td>
<td>3</td>
<td>Prereq satisfactory math placement score or passing Math 101 or 107 with a C or better.</td>
<td>3</td>
<td>Logical and historical development of present-day number systems and associated algorithms; methods of problem solving.</td>
</tr>
<tr>
<td>Math 252 Mathematics for Elementary School Teachers II</td>
<td>3</td>
<td>Prereq one year high school geometry; Math 251.</td>
<td>3</td>
<td>Informal approach to some current computer software for solving mathematical problems.</td>
</tr>
<tr>
<td>Math 302 Theory of Numbers</td>
<td>3</td>
<td>Prereq Math 172, 220.</td>
<td>3</td>
<td>Divisibility properties of integers; congruences; Diophantine equations; quadratic residues.</td>
</tr>
<tr>
<td>Math 303 Higher Geometry</td>
<td>3</td>
<td>Prereq Math 220.</td>
<td>3</td>
<td>Geometric as a deductive system of logic, postu-lational systems; projective and non-Euclidean geometries.</td>
</tr>
<tr>
<td>Math 310 Differential Equations</td>
<td>3</td>
<td>Prereq Math 220, 273.</td>
<td>3</td>
<td>Linear differential equations and systems; series, numerical and qualitative approaches; applications.</td>
</tr>
<tr>
<td>Math 320 Elementary Modern Algebra</td>
<td>3</td>
<td>Prereq Math 220.</td>
<td>3</td>
<td>Algebra as a deductive system; number systems; groups, rings, and fields.</td>
</tr>
<tr>
<td>Math 325 Elementary Combinatorics</td>
<td>3</td>
<td>Prereq Math 220.</td>
<td>3</td>
<td>Introduction to combinatorial theory: counting methods, binomial coefficients and identities, generating functions, occurrence relations, inclusion-exclusion methods.</td>
</tr>
<tr>
<td>Math 351 Mathematics for Elementary School Teachers I</td>
<td>3</td>
<td>Prereq Math 252.</td>
<td>3</td>
<td>Geometric transformations, coordinate methods in geometry, applications of school mathematics, mathematics software.</td>
</tr>
<tr>
<td>Math 360 Probability and Statistics</td>
<td>3</td>
<td>Prereq Math 172.</td>
<td>3</td>
<td>Probability models, sample spaces, random variables, distributions, moments, comparative experiments, tests, correlation and regression in engineering applications. Cooperative course taught jointly by WSU and UI (Math 301).</td>
</tr>
<tr>
<td>Math 364 Principles of Optimization</td>
<td>3</td>
<td>Prereq Math 202 or 220.</td>
<td>3</td>
<td>Algebra of linear inequalities; duality; graphs, transport networks; linear programming; special algorithms; nonlinear programming; selected applications.</td>
</tr>
<tr>
<td>Math 375 Vector Analysis</td>
<td>3</td>
<td>Prereq Math 315.</td>
<td>3</td>
<td>Line integrals, gradient, curl, divergence; Stokes’ theorem, potential functions.</td>
</tr>
<tr>
<td>Math 397 Mathematicians at Work</td>
<td>1</td>
<td>Introduction to various options in mathematics and the oral, written and leadership skills required for success in the field.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 398 Mathematical Snapshots</td>
<td>1</td>
<td>Prereq Math 172.</td>
<td>1</td>
<td>Character, life work, and historical importance of mathematicians from various eras and branches of mathematics.</td>
</tr>
<tr>
<td>Math 401 Introduction to Analysis I</td>
<td>3</td>
<td>Prereq Math 315.</td>
<td>3</td>
<td>Properties of sets and sequences of real numbers; limits, continuity, differentiation and integration of functions; metric spaces.</td>
</tr>
<tr>
<td>Math 402 Introduction to Analysis II</td>
<td>3</td>
<td>Prereq Math 401.</td>
<td>3</td>
<td>Sequences of functions, power series, multivariable calculus, inverse and implicit function theorems, Lagrange multipliers, change of variable in multiple integrations.</td>
</tr>
<tr>
<td>Math 408 Mathematics for Economists</td>
<td>3</td>
<td>Prereq Math 201, 202.</td>
<td>3</td>
<td>Mathematical topics applicable to modern economic analysis and research.</td>
</tr>
<tr>
<td>Math 409 Elements of Mathematical Economics</td>
<td>3</td>
<td>Same as Econ 410.</td>
<td>3</td>
<td>New curricula and pedagogical techniques for secondary school mathematics.</td>
</tr>
</tbody>
</table>

1 Credit does not apply toward graduation.
415 Intermediate Differential Equations 3 Prereq Math 315. Linear systems; qualitative theory (existence, uniqueness, stability, periodicity); boundary value problems; applications.

416 Simulation Methods 3 Prereq Cpt S 150 or 203; statistics course. Model formulation and simulation in business, industry, and government; simulation languages; analysis of simulation output; applications. Credit not granted for both Math 416 and 516.

418 Mathematical and Scientific Visualization 3 Prereq Math 172, 220, a programming language. Three-dimensional computer imaging of scientific, engineering, and mathematical phenomena using modern techniques for curve and surface display in computer-aided design. Credit not granted for both Math 418 and 518.

420 Linear Algebra 3 Prereq Math 220. Advanced topics in linear algebra including similarity transformations, canonical forms, bilinear forms. Credit not granted for both Math 420 and 520.


430 Statistical Methods in Engineering 3 Prereq Math 172, 220. Random variables, sampling, hypothesis testing; linear, multilinear, and nonlinear regression; analysis of variance for designed experiments; statistical computing. Credit not normally granted for both Math 430 and 442.

431 Topics in Science and Mathematics Teaching 1 or 2 May be repeated for credit. Prereq Bio S 430, or CSE Math 220. For prescelcted teachers. New curricula and pedagogical techniques for middle school/high school instruction in science and mathematics. Credit not granted for both Math 431 and 531.

432 Foundations of Secondary School Mathematics 3 Prereq teaching experience. For prescelcted teachers. Pre-algebra and algebra from a mature point of view; properties of systems; open sentences; equations; functions and graphs. Credit not granted for both Math 432 and 532.

433 Approaches to Mathematics Teaching 2 Prereq teaching experience. For prescelcted teachers. Problem solving and the use of manipulative devices in the teaching of K-8 mathematics. Credit not granted for both Math 433 and 533.

435 Astronomy and Astrophysics 3 May be repeated for credit; cumulative maximum 6 hours. Same as Astr 435.

439 Applications of School Mathematics 3 Prereq Math 432. For prescelcted teachers. Role of application in the classroom; examples using arithmetic, algebra, geometry, counting principles and probability; teaching concepts in applications. Credit not granted for both Math 439 and 539.

440 Applied Mathematics I 3 Prereq Math 315. Partial differential equations; Fourier series and integrals; Bessel functions; calculus of variations; vector calculus; applications. Credit not granted for both Math 440 and 540.

441 Applied Mathematics II 3 Prereq Math 315. Complex variable theory including analytic functions, infinite series, residues, and conformal mapping; Laplace transforms; applications. Credit not granted for both Math 441 and 541.

442 Statistical Methods for Engineers and Scientists 3 Prereq Math 220; 360 or other 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 Math 442 and 542.

443 Applied Probability 3 Prereq Math 172, 220. Axioms of probability theory; random variables; expectation; generating function; law of large numbers; central limit theorem; Markov chains. Cooperative course taught jointly by WSU and UI (Math 451).

448 Numerical Analysis 3 Prereq FORTRAN programing; 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.

460 Introduction to Statistical Theory 3 Prereq Math 430 or 443. Sampling distributions; hypothesis testing and estimation; maximum likelihood; likelihood ratio tests; theory of least squares; nonparametrics. Cooperative course taught jointly by WSU and UI (Math 452). Credit not granted for both Math 456 and 556.

461 Metallurgical Control and Optimization 3 Basics of process control and optimization applied to metallurgical engineering. Cooperative course taught by UI (Met 461), open to WSU students.

464 Operations Research and Game Theory 3 Prereq Math 273. Linear and integer programing; optimization problems; applications to economic and military strategies; rectangular games; minimax theory. Cooperative course taught jointly by WSU and UI (Math 452). Credit not granted for both Math 456 and 556.

466 Optimization in Networks 3 Prereq Math 325 or 364, or knowledge of linear programing. Formulation and solution of network optimization problems including shortest path, maximal flow, minimum cost flow, assignment, covering, postman, and salesman. Credit not granted for both Math 466 and 566.

481 Topics in Analysis 3 May be repeated for credit. 497 Instructional Practicum 1 or 2 May be repeated for credit; cumulative maximum 2 hours. By interview only. S, F grading.

498 Career Experience Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Industrial or governmental career experience in a mathematics or mathematics-related area, supervised by qualified professionals. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

500 Preiminar 1 May be repeated for credit; cumulative maximum 2 hours. S, F grading.

501 Real Analysis 3 Prereq Math 402. Metric spaces, convergence, continuous functions, infinite series, differentiation and integration of functions of one and several variables.


504 Measure and Integration 3 Prereq Math 501. Lebesque measure, Lebesque integration, differentiation, L-spaces, general measure and integraion, Radon-Nikodym Theorem, outer measure and product measures. Cooperative course taught jointly by WSU and UI (Math 571).


507 Advanced Theory of Numbers 3 May be repeated for credit; cumulative maximum 6 hours. Analytic and algebraic number theory. Cooperative course taught by WSU, open to UI students (Math 507).


509 Foundations of Mathematics 3 The basis of mathematics in logic and set theory; continuum hypothesis; Godel’s theorems, recent developments. Cooperative course taught by WSU, open to UI students (Math 509).

510 Topics in Probability and Statistics 3 Graduate-level counterpart of Math 410; additional requirements. Credit not granted for both Math 410 and 510.

512 Ordinary Differential Equations 3 Prereq Math 402. Existence of solutions; linear systems; qualitative behavior, especially stability; periodic solutions. Cooperative course taught jointly by WSU and UI (Math 539).

515 Statistical Packages 3 (2-3) Prereq statistical methods course. No previous computer experience required. Computer techniques for statistical methods; comparison of capabilities of major statistical packages; analysis techniques, graphics, terminal use, data structures, numerical algorithms.

516 Simulation Methods 3 Graduate-level counterpart of Math 466; additional requirements. Credit not granted for both Math 416 and 516.

518 Mathematical and Scientific Visualization 3 Prereq graduate standing. Graduate-level counterpart of Math 418; additional requirements. Credit not granted for both Math 418 and 518.

520 Linear Algebra 3 Prereq graduate standing. Graduate-level counterpart of Math 420; additional requirements. Credit not granted for both Math 420 and 520.

521 Algebraic Sytructures 3 Prereq graduate standing. Graduate-level counterpart of Math 421; additional requirements. Credit not granted for both Math 421 and 521.

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 511).
526 Advanced Topology 3 Prereq Math 421, 525. General topology; basic ideas of algebraic topology. Cooperative course taught jointly by WSU and UI (Math 512).

527 Algebraic Topology 3 Prereq Math 526. Basic homotopy theory and application. Cooperative course taught by UI (Math 523), open to Wsu students.

528 Algebraic Topology 3 Prereq Math 527. Continuation of Math 527. Cooperative course taught by UI (Math 524), open to Wsu students.

531 Topics in Science and Mathematics Teaching 1 or 2 May be repeated for credit. Graduate-level counterpart of Math 431; additional requirements. Credit not granted for both Math 431 and 531.

532 Foundation of Secondary School Mathemetics 2 Prereq graduate standing. Graduate-level counterpart of Math 432; additional requirements. Credit not granted for both Math 432 and 532.

534 Approaches to Mathematics Teaching 2 Prereq graduate standing. Graduate-level counterpart of Math 434; additional requirements. Credit not granted for both Math 434 and 534.

538 Topics in Modern Astrophysics 3 May be repeated for credit; cumulative maximum 9 hours. Same as Astr 538.

539 Applications of School Mathematics 3 Prereq graduate standing. Graduate-level counterpart of Math 439; additional requirements. Credit not granted for both Math 439 and 539.

540 Applied Mathematics I 3 Prereq 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 graduate standing. Graduate-level counterpart of Math 441; additional requirements. Credit not granted for both Math 441 and 541.

543 Approximation Theory 3 Univariate polynomial and rational approximation techniques; approximation using splines and wavelets; selected topics in multivariate approximation; algorithms for approximation. Cooperative course taught by Wsu, open to UI students (Math 543).

544 Advanced Matrix Computations 3 Prereq Math 448. Advanced topics in the solution of linear systems and eigenvalue problems, including parallel matrix computations. Cooperative course taught by Wsu, open to UI students (Math 544).

545 Numerical Analysis of Evolution Equations 3 Prereq Math 448. Discretization and numerical solution of partial differential equations of evolution; stability, consistency, and convergence; shocks; conservation of forms. Cooperative course taught by Wsu, open to UI students (Math 545).

546 Numerical Analysis of Elliptic PDEs 3 Prereq Math 448. Methods of discretizing elliptic partial differential equations and solving the resulting systems of equations; error analysis. Cooperative course taught by Wsu, open to UI students (Math 547).

548 Numerical Analysis 3 Prereq graduate standing. Graduate-level counterpart of Math 448; additional requirements. Credit not granted for both Math 448 and 548.

550 Advanced Topics in Geometry 3 Projective, affine, and non-Euclidean geometries and their relation to abstract algebra and differential geometry. Cooperative course taught by Wsu, open to UI students (Math 554).

551 Ring Theory 3 Ideals, quotient rings, modules, radicals, semi-simple Artinian rings, Noetherian rings. Cooperative course taught by UI (Math 551), open to Wsu students.

552 Galois Theory 3 Field extensions, automorphisms, normality, splitting fields, radical extension, finite fields, separability. Cooperative course taught by UI (Math 552), open to Wsu students.

553 Graph Theory 3 Prereq graduate standing. Graduate-level counterpart of Math 453; additional requirements. Credit not granted for both Math 453 and 553.


555 Topics in Combinatorics 3 May be repeated for credit; cumulative maximum 6 hours. Combinatorics, generating functions, recurrence relations, inclusion-exclusion, coding theory; experimental design, graph theory.

556 Introduction to Statistical Theory 3 Prereq graduate standing. Graduate-level counterpart of Math 456; additional requirements. Credit not granted for both Math 456 and 556.


561 Partial Differential Equations II 3 Prereq Math 456. Continuation of Math 560. Cooperative course taught by Wsu, open to UI students (Math 542).

562 Secondary School Mathematics 3 Same as T & L 562. Cooperative course taught jointly by Wsu and UI (Math 504).

563 Mathematical Genetics 3 Prereq GenCB 301; Stat 412, 430, or 443. Statistical approaches to Mendelian and population genetics; theories and estimation of genetic parameters; testing genetic hypotheses.

564 Topics in Optimization 3 May be repeated for credit. 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. Cooperative course taught by Wsu, open to UI students (Math 564).

566 Optimization in Networks 3 Prereq graduate standing. Graduate-level counterpart of Math 466; additional requirements. Credit not granted for both Math 466 and 566.

568 Statistical Theory I 3 Prereq Math 273; 430 or 443. Probability spaces, combinatorics, multidimensional random variables, characteristic function, special distributions, limit theorems, stochastic processes, order statistics. Cooperative course taught by Wsu, open to UI students (Stat 548).

569 Statistical Theory II 3 Prereq Math 568. Continuation of Math 568. Statistical inference; estimation and testing hypotheses; regression analysis; sequential analysis and nonparametric methods. Cooperative course taught by Wsu, open to UI students (Stat 549).

570 Mathematical Foundations of Continuum Mechanics I 3 Prereq advanced calculus and differential equations. The basic mathematical theory of continuum mechanics and its relation to perturbation techniques and stability methods. Cooperative course taught by Wsu, open to UI students (Math 570).

571 Mathematical Foundations of Continuum Mechanics II 3 Prereq Math 570. Continuation of Math 570. Cooperative course taught by Wsu, open to UI students (Math 573).

573 Reliability Theory 3 Prereq Math 430, 443. Statistical concepts; stochastic material strengths and lifetimes; strength vs safety analysis; reliability of coherent systems; maintenance models; complex systems. Cooperative course taught jointly by Wsu and UI (Stat 571).

581 Seminar in Analysis V 1-3 May be repeated for credit. Cooperative course taught jointly by Wsu and UI (Math 541).

582 Seminar in Algebra V 1-3 May be repeated for credit. Cooperative course taught jointly by Wsu and UI (Math 561).

583 Seminar in Applied Mathematics V 1-3 May be repeated for credit. Cooperative course taught by Wsu, open to UI students (Math 583).

584 Seminar in Topology and Geometry V 1-3 May be repeated for credit. Cooperative course taught by Wsu, open to UI students (Math 584).

585 Seminar in Number Theory V 1-3 May be repeated for credit. Cooperative course taught by Wsu, open to UI students (Math 587).

586 Topics in Mathematical Modeling in Natural Sciences V 1-3 May be repeated for credit; cumulative maximum 12 hours. Selected topics in the modeling of physical and biological phenomena. Cooperative course taught by Wsu, open to UI students (Math 588).

589 Seminar in Precollege Mathematics Education 3 Same as T & L 563.

590 Seminar in Undergraduate Mathematics Instruction V 1-3 May be repeated for credit; cumulative maximum 6 hours. Curricular and other problems of teaching mathematics to undergraduates.

591 Seminar in the History of Mathematics I 1 Topics in the history of mathematics to 1800.

592 Seminar in the History of Mathematics II 1 Topics in the history of mathematics from 1800 to present.

600 Special Projects or Independent Study Variable credit. S, F grading.

602 Internship V 2-12 May be repeated for credit. Prereq 40 hours graduate work. A structured internship from three to nine months; teaching at the postsecondary level or applied work in a non-academic environment. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

School of Mechanical and Materials Engineering

Professor and School Director, S. Antolovich; Professors, R. A. Altenkirch, J. N. Chung, C. T. Crowe,
MECHANICAL ENGINEERING

The mechanical engineering program is concerned with (a) the use and economical conversion of energy from natural sources into other useful energy to provide power, light, heat, 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 are available for participation in mechanical design, systems design, equipment development, manufacturing, CAD/CAM, project engineering, production management, applied research and sales and service.

The 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. In the fourth year each student selects an emphasis area with two design-focused electives to build upon material from the foundation courses and to integrate across the emphasis area. The undergraduate program is completed with both a capstone project design course and 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. An integrated BS/MS program prepares students 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. Because of the diversity of useful properties encountered in materials engineering, attention must also be given to the application and peculiarities of specific materials types.

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 interdepartmental program leading to the degree of Doctor of Philosophy (Materials Science and Engineering) and an interdisciplinary program leading to the Doctor of Philosophy (Materials Science).

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

Students in the Four-Year Degree Agreement program must certify on time, take all indicated courses in first two years, follow remainder of schedule, and have an MSE or ME advisor throughout entire program.

MATERIALS SCIENCE AND ENGINEERING

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 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. Because of the diversity of useful properties encountered in materials engineering, attention must also be given to the application and peculiarities of specific materials types.

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 interdepartmental program leading to the degree of Doctor of Philosophy (Engineering Science) and an interdisciplinary program leading to the Doctor of Philosophy (Materials Science).

MATERIALS SCIENCE AND ENGINEERING DEGREE PROGRAM (132 HOURS) ✔FYDA

Freshman Year

First Semester

Chem 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math 171 [N] (GER) 4
MSE 110 2

Second Semester

Biological Sciences [B] (GER) 3
Chem 106 [P] (GER) 4
Cpt S 203 2
GenEd 111 [A] (GER) 3
Math 172 4

Sophomore Year

First Semester

Arts & Humanities [H,G] (GER) 3
C E 211 3
Econ 102 [S] (GER) 3
Math 220 2
Math 273 2
Phys 201 [P] (GER) 4

Second Semester

C E 215 3
Intercultural [L,G,K] (GER) 3

Junior Year

First Semester

E E 304 2
M E 310 3
M E 316 [M] 3
MSE 312 3
MSE 320 2
Physical Science Elective 3

Second Semester

Engineering Science Elective 3
MSE 314 3
MSE 316 3
MSE 321 3
MSE 323 1
MSE 413 3
Physical Science Elective 3

Senior Year

First Semester

Engl 402 [W] (GER) 3
MSE 401 3
MSE 402 3
MSE 403 3
MSE 412 1
MSE 425 [M] 2
Tier III Capstone [H,G,S,K] (GER) 3

Second Semester

MSE 404 3
MSE 405 3
MSE 420 3
MSE 426 [M] 2
MSE 450 1
Technical Elective 3

MATERIALS SCIENCE AND ENGINEERING DEGREE PROGRAM (131 HOURS) ✔FYDA

Freshman Year

First Semester

Chem 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Cpt S 203 2
GenEd 111 [A] (GER) 3
Math 172 4

Second Semester

Biological Sciences [B] (GER) 3
Chem 106 [P] (GER) 4
Cpt S 203 2
GenEd 111 [A] (GER) 3
Math 172 4

Sophomore Year

First Semester

Arts & Humanities [H,G] (GER) 3
C E 211 3
Econ 102 [S] (GER) 3
Math 220 2

Second Semester

C E 215 3
Intercultural [L,G,K] (GER) 3

Junior Year

First Semester

E E 304 2
M E 310 3
M E 316 [M] 3
MSE 312 3
MSE 320 2
Physical Science Elective 3

Second Semester

Engineering Science Elective 3
MSE 314 3
MSE 316 3
MSE 321 3
MSE 323 1
MSE 413 3
Physical Science Elective 3

Senior Year

First Semester

Engl 402 [W] (GER) 3
MSE 401 3
MSE 402 3
MSE 403 3
MSE 412 1
MSE 425 [M] 2
Tier III Capstone [H,G,S,K] (GER) 3

Second Semester

MSE 404 3
MSE 405 3
MSE 420 3
MSE 426 [M] 2
MSE 450 1
Technical Elective 3

1 Selected from: Chem 331, 333, 336; Chem 340, 341, 342; or Phys 303, 304.
2 One from: C E 212, Ch E 480, E E 214, 305, M E 303, 404.
3 Upper-division C E, Ch E, Chem, Cpt S, E E, Math, M E, Phys, or Stat course.
Math 273          2
Phys 201 [P] (GER)  4

**Second Semester**  Hours
Arts & Humanities [H,G] (GER) 3
C E 212               3
C E 215               3
M E 320               1
Math 315               3
Phys 202 [P] (GER) 4

**Junior Year**

**First Semester**  Hours
E E 304                2
M E 301               3
M E 303               3
M E 313               3
M E 316 [M]           3
MSE 301               3
Complete Writing Portfolio

**Second Semester**  Hours
E E 305                2
M E 310               3
M E 311               1
M E 348               3
M E 349               1
M E 404               3
M E 414               3

**Senior Year**

**First Semester**  Hours
Engl 402 [W] (GER) 3
Intercultural [I,G,K] (GER) 3
M E 305               2
Emphasis Area Elective 3
M E or MSE Technical Elective 3
Technical Elective 3

**Second Semester**  Hours
M E 406 [M]           3
M E 416               3
Tier III Capstone [H,G,S,K] (GER) 3
Emphasis Area Elective 3
Technical Elective 3

Choose two from one emphasis: Design & Manufacturing: M E 415, 474; Applied Mechanics: M E 472, 481; Energy and Environmental Systems: M E 402; 405 or 435; Fluids & Aerospace: M E 402; 407 or 439.

Approved 300-400-level technical course or Mgt 301 or Mktg 360.

**Certification Materials Science and Engineering**

Certification into the Bachelor of Science program in Materials Science and Engineering is limited to 21 students per entering class. To be eligible for certification, a student must have completed at least the following:

a. 30 semester hours of graded course work at Wsu or the equivalent of 30 semester hours of acceptable transfer credit with an overall g.p.a. of 2.0 or above.
b. Chem 105 or equivalent.
c. Chem 106, Phys 201, or equivalent.
d. Math 171, 172, or equivalent.

Other criteria considered for certification are overall g.p.a. and performance in other mathematics, science and engineering courses. For additional details, contact the school's office of student services.

**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 necessary prior to transfer to minimize the time required at Washington State University to complete the bachelor's degree requirements.

The requirements for direct entry into the mechanical engineering or materials science and engineering programs upon transfer are the same as listed above for certification. Transfer student applications will be handled by the Admissions Office and sent to the school so that students do not need to make separate application to the school.

**Preparation for Graduate Study**

Before undertaking graduate study, a student should have completed substantially the equivalent of the above schedule of studies. Students from other scientific disciplines (such as physics, chemistry, mathematics) are encouraged to apply. Specific details concerning prerequisites for such students are worked out on an individual basis.

**Description of Courses**

**Mechanical Engineering**

M E 103 Engineering Graphics 3 (1-6) Orthographic theory, conventions, and visualization; isometric and oblique pictorials; graphical analysis and solution of spatial problems, computer-aided drafting. Cooperative course taught by Wsu, open to UI students (ME 101).

120 Innovation in Design 2 Engineering and architectural creativity; role, function, enhancement, integration in design methods.

125 M E Merit Experience 2 Prereq by interview only. A hands-on, project-oriented course emphasizing teamwork and creativity in engineering design, conducted in an enriched learning environment.

301 Fundamentals of Thermodynamics 3 Prereq Phys 201; 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 (ChE 321).

303 Fluid Dynamics 3 Prereq Phys 202; major in engr; Rec M E 301 or c/. Laminar and turbulent flow of ideal and viscous fluids, pipe flow, boundary layers, wing theory, supersonic flow, nozzles, shock waves. Cooperative course taught jointly by Wsu and UI (CE 320).

305 Thermal and Fluids Laboratory 2 (1-3) Prereq M E 303, major in engr; Rec E E 305. Instrumentation, data acquisition and control, and theory verification in the thermal and fluid sciences.

310 Manufacturing Processes 3 Prereq MSE 301, major in engr. Cutting operations, metal forming by deformation, material fabrication, and nontraditional processing.

311 Manufacturing Processes Laboratory 1 (0-3) Prereq M E 303, major in engr; Rec E E 305. Cooperative course taught jointly by Wsu and UI (ME 324), open to Wsu students.

313 Engineering Analysis 3 Prereq Math 315, major in engr; Rec FORTRAN or C program. Analysis and modeling of engineering problems utilizing numerical and mathematical techniques and computers.

316 [M] Systems Design 3 Prereq MSE 301 or c/; Rec C E 211. Engineering design process for systems and components; design criteria, creativity, engineering economics, engineering statistics, standards, product safety, design projects.

320 Materials Laboratory 1 (0-3) Prereq C E 215 or c/, major in engr. Mechanical behavior of materials and application to engineering structures.

325 Manufacturing Planning and Estimating 3 Prereq M E 310, 311, Math 360. Quantitative techniques of production and planning and control, material requirements, operations scheduling, production economics.

348 Dynamics Systems 3 Prereq M E 313, major in engr. Fundamentals of vibration analysis, control systems, system modeling and dynamics analysis.

349 Dynamic Systems Laboratory 1 (0-3) Prereq M E 348 or c/. Laboratory investigations of dynamic systems.
375 Manufacturing Control Systems 3 (2-3) Prereq C E 212, E E 304, Math 315. Feedback control; hardware components, software algorithms, and system integration for process control.

400 Seminar in Manufacturing 2 Prereq senior standing. Current industry practice; non-technical skills (communication, product realization, human factors, ethics, corporate culture, market focus, career development).

402 Thermodynamic Systems 3 Prereq M E 301, major in engr. Power and refrigeration cycles, thermodynamic relations, mixtures, reacting systems and combustion, phase and chemical equilibrium, compressible flow.

404 Heat Transfer 3 Prereq M E 303 or c/l, major in engr. Conduction, radiation, and convection heat transfer; analytical, numerical, experimental results for solids, liquids, and gases; heat exchanger design. Cooperative course taught jointly by WSU and UI (ME 345).

405 Thermal Engineering 3 Prereq M E 404 or c/l. Heat, mass, and momentum transfer in thermal systems and system components; computer-aided analysis; optimization and design of thermal systems.

406 [M] Experimental Design 3 (1-6) Prereq M E 305; 404; major in M E; Rec M E 348. Designing, conducting, and reporting of experimental investigations involving mechanical equipment.

407 Computational Fluid Dynamics 3 Prereq M E 303. Basic concepts and applications of computational fluid dynamics to the analysis and design of fluid systems and components.

413 Mechanics of Solids 3 Same as MSE 413.


415 Integrated Design 3 Prereq M E 310, 414 or c/l; major in engr. Methodologies to optimize product design incorporating functionality, reliability, manufacturability and maintainability.

416 Design Project 3 (1-6) Prereq M E 348; 404, 414; Rec M E 316. Integrative design in mechanical engineering; multidisciplinary design project considering both technical and nontechnical contexts; organizational dynamics and communications.

419 Air Conditioning 3 Prereq ME 404. Principles of heat and moisture transfer; air motion and purity in buildings; design of systems. Cooperative course taught jointly by WSU and UI (ME 444).

420 Capstone Engineering Design 3 (1-6) Prereq senior in engr. Integrative design in engineering; multi-disciplinary design project considering both technical and nontechnical contexts; organizational dynamics and communications.

422 Flow of Compressible Fluids 3 Prereq M E 303. Quasi-one-dimensional flow, shock waves, unsteady one-dimensional flow and steady two-dimensional flows.

435 Thermal Energy Systems 3 Prereq M E 404 or c/l. Thermal energy systems of current interest including combustion, nuclear, and direct conversion based systems.

436 Combustion Engines 3 Prereq M E 303. Internal combustion engines; spark ignition engines, diesels, and gas turbines.

439 Applied Aerodynamics 3 Prereq M E 303. Aerodynamic drag; circulation; boundary layers, application to vehicle and structural design and pollution control.

442 Robotics 3 Same as E E 442.

449 Vibrations and Noise Control 3 Prereq M E 348. Vibrating systems and noise producing mechanisms; design for noise and vibration control. Cooperative course taught jointly by WSU and UI (ME 472).

450 Stress Design Codes 3 Prereq C E 215. Theoretical bases and application of the principal regulatory stress analysis design codes.


460 Nuclear Reactor Engineering 3 Prereq M E 461. Nuclear reactor design problems in thermodynamics, fluid flow, heat transfer, fuel preparation, waste disposal, materials selection; discussion of reactor types. Cooperative course taught by UI (NE 460), open to WSU students.

461 Introduction to Nuclear Engineering 3 Prereq junior in engr or Ph S. Applied nuclear physics; application to the nuclear fuel cycle and nuclear reactor core design; nuclear reactor systems and safety. Cooperative course taught jointly by WSU and UI (NE 360).

463 Probabilistic Risk Assessment and Applications 3 Prereq senior in engr or physical science. Basics of reliability and probabilistic risk assessment (PRA); applications in operations and maintenance, as practiced in nuclear industry.

467 Nuclear Fuel Cycle Economics 3 Same as Ch E 467.

470 Dynamics of Machinery 3 Prereq M E 348. Kinematics and kinetics of mechanisms and machines; static and dynamic force analyses of planar and spatial systems; synthesis for functionality.


473 Computer-aided Design 3 (2-3) Prereq M E 313. Interactive computer programming and graphics in the design of engineering systems.

474 Advanced Manufacturing Processes 3 Prereq M E 310. Mechanical and metallurgical fundamentals of metal machining and materials processing by deformation; manufacturing systems concepts in production.

475 Manufacturing Automation 3 (2-3) Prereq M E 310, 348 or c/l. Computer control of manufacturing processes; numerically controlled machine tools, robotics, control algorithms, component and system design.

481 Control Systems 3 Prereq M E 348. Analysis and design of feedback control systems. Cooperative course taught jointly by WSU and UI (ME 481).

495 Internship in Mechanical Industry 3 or 6 May be repeated for credit; cumulative maximum 12 hours. Prereq major in M E or MSE. By interview only. Students work full time on engineering assignment in approved industries with industrial and faculty supervision. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Continuum Mechanics 3 Prereq graduate standing. Unified presentation of principles common to all branches of solid and fluid mechanics; viscous fluids, elasticity, viscoelasticity, and plasticity.

513 Conduction Heat Transfer 3 Rec M E 404. Analytic methods applied to multidimensional steady-state and transient conduction heat transfer, melting and ablation, numerical methods.

514 Thermal Radiation Processes 2 or 3 Rec M E 404. Thermal radiation within enclosures, ideal and real surfaces; radiative processes within absorbing/emitting media; applications to furnaces, solar energy systems. Cooperative course taught jointly by WSU and UI (ME 547).

515 Convective 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).


522 Viscous Fluid Mechanics 3 Rec M E 521. Deterministic fluid phenomena, exact solutions of Navier-Stokes equations; boundary layer analysis, vorticity generation and development, stability, and transition.

526 Microscopic Thermodynamics 3 Microscopic development of equilibrium; classical and quantum particle statistics; statistical description of real and ideal gases, solids, and liquids. Cooperative course taught jointly by WSU and UI (ME 526).

527 Macroscopic Thermodynamics 3 Advanced thermodynamics from 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).


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.

533 Experimental Methods in Materials and Manufacturing Process 3 Rec M E 530. Theoretical and experimental techniques in engineering material behavior and manufacturing processes. Cooperative course taught by WSU, open to UI students (ME 533).

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).

535 Tribology 3 Rec M E 530. Friction, wear, and lubrication of solids with emphasis on metals.

537 Fracture Mechanics and Mechanisms 4 Same as MSE 537.
540 Advanced Dynamics of Physical Systems 3
Newtonian dynamics, rotating coordinate systems; Lagrangian and Hamiltonian mechanisms; gyroscopic mechanics, other applications. Cooperative course taught by WSU, open to UI students (M E 505).

541 Advanced Mechanical Vibrations 2 or 3 Rec M E 449. Response of single and multi degree of freedom systems; finite element formulation; matrix methods, random vibrations. Cooperative course taught jointly by WSU and UI (ME 572).

542 Optimal Control of Dynamic Systems 3 Introduction to optimal control theory, differential games, and multiple criteria systems; applications in engineering, biology, economics, agriculture, and medicine. Cooperative course taught by WSU, open to UI students (ME 542).

544 Optimal Systems Design 3 Parameter design optimization techniques for nonlinear systems; theory, numerical methods, and applications; multiple criteria optimal trade-off analysis and game theory.

545 Nonlinear Dynamics 3 Rec M E 540 or 541. Fundamentals of nonlinear oscillations, stability theory, perturbation methods, and chaotic behavior in nonlinear dynamical systems.

548 Acoustics 3 Fundamental principles of linear and nonlinear acoustics and its applications.

551 Turbulent Flow 3 Rec C E 550 or M E 521. Turbulent flow; dimensional analysis, statistical models and descriptions of organized structures.

552 Experimental Methods in Thermal-fluid Science 3 (2-3) Theory and practice in the use of instrumentation for measuring temperature, velocity, pressure and concentration; measurement of classical flow fields.

553 Two-phase Flow V 1-3 May be repeated for credit, cumulative maximum 3 hours. Rec M E 521. Fundamentals of the flow of fluids with two phases and applications. Cooperative course taught by WSU, open to UI students (ME 553).

556 Numerical Modeling in Fluid Mechanics 3 Same as C E 556. Cooperative course taught by WSU, open to UI students (ME 556).

561 Combustion 3 Rec M E 521. General combustion phenomena, chemical reactions, combustion modeling, laminar and turbulent flame theory, emissions. Cooperative course taught by WSU, open to UI students (ME 561).

562 Nuclear Reactor Theory 3 Prereq M E 461; differential equations. Basic reactor neutronic theory, including basic transport equation; multi-group, multi-region diffusion theory; kinetics; and perturbation theory.

565 Nuclear Reactor Engineering 3 Prereq M E 461. Reactor power distribution; thermal and exposure limits; critical heat flux and pressure design; neutronic/thermal hydraulic relationships; transient/accident analysis.

569 Advanced Topics in Thermal and Fluid Sciences V 1-3 May be repeated for credit. Advanced topics in thermodynamics, heat transfer or fluid mechanics; analytical and experimental methods.

574 Advances in Manufacturing Science 3 Rec M E 474. Advances in machinability, formability and precision engineering; new manufacturing processes of precise and electronic components. Cooperative course taught by WSU, open to UI students (ME 574).

575 Computer Integrated Manufacturing 3 Rec M E 475. Hierarchical control of manufacturing systems; interface and network considerations; process planning; optimization strategies.

579 Advanced Topics in Design and Manufacturing V 1-3 May be repeated for credit.

598 Seminar 1 May be repeated for credit. Seminar on current research interests. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Materials Science and Engineering

MSE

110 Introduction to Materials Science 2 Introduction to the science and technology of metals, polymers, ceramics and composites.

120 Innovation in Design 2 Same as M E 120.

301 Materials Science 3 Prereq Chem 106, Phys 202 or c//. Structure of materials, phase equilibrium, phase transformations, and mechanical properties.

302 Materials Science 3 Prereq Chem 105, Phys 202 or c//. Structure of materials, phase equilibrium, transformations; electronic structure of solids; thermal, electrical, and magnetic properties of materials; semiconductors, dielectrics.

309 Metallurgy Transport Phenomenon 3 Prereq Math 315 or c//. Introduction to principles of metallurgy transport phenomena including heat, mass, and momentum transfer. Cooperative course taught by UI (Met 309), open to WSU students.

312 Thermodynamics and Phase Equilibrium 3 Prereq MSE 301. Concepts of activity, equilibrium, solution properties; relationship between free energy, composition, and temperature; heterogeneous equilibria.

314 Equilibrium Diagrams 2 Prereq MSE 301, 312. Interpretation of equilibrium diagrams; free-energy vs. composition diagrams; ternary and higher order systems; pressure temperature relationships.

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 Metallurgy 2 (0-6) Prereq MSE 301 or c//; major in MSE. Principles and techniques of optical metallurgy and other laboratory methods used in modern materials science and engineering.

321 Materials Characterization 3 Prereq MSE 301. Properties of x-rays, scattering and diffraction; crystal structures; x-ray diffraction methods, transmission electron microscopy and scanning electron microscopy.

323 Materials Characterization Lab 1 (0-3) Prereq c// in MSE 321. Laboratory exercises on materials characterization: x-ray, TEM, SEM.
499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Advanced Topics in Materials Science 2 or 3 May be repeated for credit; cumulative maximum 6 hours. Chemical crystallography, microstructure, ultra-structure, theories of crystalline and non-crystalline solids, rheology and fracture mechanism of materials. Cooperative course taught by WSU, open to UI students (244).

503 Advanced Topics in Materials Engineering V 1-3 May be repeated for credit; cumulative maximum 6 hours.

511 Deformation 3 Rec MSE 413. Elementary dislocation theory and its application to some important deformation processes.

513 Crystal Plasticity 3 Rec Math 440. Dislocation theory; slip; climb; mechanical properties of crystals, compounds and alloys.

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.

519 Corrosion and Oxidation of Metals 3 Prereq MSE 316. Basic corrosion and oxidation mechanisms for various metals with emphasis on those pertaining to stainless steels.

520 Seminar 1 May be repeated for credit; cumulative maximum 3 hours. Reporting problems, research and research methods in materials science and engineering. S, F grading.

537 Fracture Mechanics and Mechanisms 4 Fracture mechanics and mechanisms and the micro-structural origins of toughness in metals, polymers and composites.

543 Natural and Synthetic Polymeric Materials 3 Rec MSE 402. Glassy, crystalline, and rubbery states of synthetic and natural polymers.

546 (550) Parameters for Synthesis of Wood Composition Materials 3 Theory and practice of wood composite materials, manufacture and development. Cooperative course taught by WSU, open to UI students (537).

547 Basic Principles of Adhesion 3 Rec MSE 402. Principles of interfacial bonding applied in the engineering of polymers, wood and heterophase systems.

548 Reinforced Polymer and Wood-based Composites 3 Fundamentals of composite materials having polymers and wood as major components.

549 Nondestructive Testing of Wood-based Materials 3 Same as C E 536.

552 Transmission Electron Microscopy 3 Development of the principles and applications of electron optics in microscopy.

553 Practical Electron Microscopy 1 (0-3) Prereq MSE 592 or C/II. Experimental methods in electron microscopy and microanalytical techniques, for materials science. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Program in Basic Medical Sciences


The Program in Basic Medical Sciences is an integral part of the Washington-Wyoming-Alaska-Montana-Idaho (WWAMI) Cooperative Program in Medical Education. Course work is parallel with and equivalent to the first year curriculum of the University of Washington School of Medicine. The entire program is taught in concert with the University of Idaho. Courses are taught on both campuses with faculty from WSU and the University of Idaho taking part in each, all WWAMI students being taught as a single class. All WWAMI students are members of the first year class of the University of Washington School of Medicine, and all courses apply to the M.D. 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 School of Medicine policy, all Med S courses are S, F graded.

Description of Courses

Medical Sciences

Med S

501P Medical Preceptorship 2 May be repeated for credit; cumulative maximum 4 hours. For WAMI students only. Practicum, observations of medical practice with individual physician volunteers.

502P Problem-based Learning 1 For WAMI students only. Studies of cases integrating content from basic science courses.

509 The Human Face of Medicine 2 For WAMI students only. Foundation of human values underlying medical practice.

510P Histology 3 (2-3) Description and microscopic examination of cell types, tissues, and major organs of the human body.

511P Anatomy of the Trunk 5 (4-3) For WAMI students only. Extensive regional study of human thorax, abdomen, pelvis, and perineum; embryology and living anatomy; correlates gross with clinical anatomy.

512P Basic Mechanisms in Cellular Physiology 4 Basic physiological mechanisms, primarily at the cellular level.

513P Introduction to Clinical Medicine 1 For WAMI students only. Instruction in communications skills and interview techniques to form the basis for the eventual doctor-patient relationship.

514P Molecular and Cellular Biology 1 3 Molecular and cellular biochemistry, cellular physiology and molecular genetics.

516P Systems of Human Behavior 1 2 Physical and psychological development of the individual; conceptual systems and models of behavior related to medicine.

520P Cell and Tissue Response to Injury 4 Tumors of the nervous system, including vision, hearing, larynx; audition and balance.

522P Introduction to Clinical Medicine II 2 For WAMI students only. Communication skills as related to patients and dealing with problems of identification and patient history.

523P Medical Immunology 2 For WAMI students only. Principles of immunology and their relation to human medicine.

524P Molecular and Cellular Biology II 2 Continuation of Med S 514.

526P Systems of Human Behavior II 2 Continuation of Med S 516 with an emphasis on models of behavior, normality and abnormality related to medicine.

530P Epidemiology 2 Basic principles of epidemiological processes; statistical inference from clinical data.

531P Head, Neck, Ear, Nose and Throat 5 (4-3) Gross anatomy, including skull, pharynx, and larynx; audition and balance.

532P Nervous System 5 (4-3) Normal structure and function of the nervous system, including the eye.

535P Introduction to Clinical Medicine III 2 (1-2) For WAMI students only. The screening physical examination.

600P Special Projects or Independent Study V 1-6 May be repeated for credit; cumulative maximum 6 hours.

Department of Microbiology

Professor and Department Chair, M. L. Kahn; Professors, K. Postle, L. P. Mallavia, N. S. Magnuson, K. D. Spence; Associate Professors, K. P. Bertrand, R. E. Hurlbert, J. L. Paznakos; Assistant Professors, M. Konkel, P. Mixter, L. Xun; Professor Emeriti, K. L. McVoy, H. M. Nakata; Adjunct Associate Professors, F. Brockman, L. Thomashow; Instructor, M. Sanchez-Lanier.

Microbiology is both a basic and an applied science. At the undergraduate level, the Department of Microbiology offers options in microbiology and medical technology, leading to a Bachelor of Science degree in Microbiology. The department also participates in the interdisciplinary molecular biology minor, listed separately in this catalog. Majors are required to develop a strong background in the basic sciences before taking courses in microbiology and those required by the various options. Employment opportunities in industrial, government, hospital and private laborato-
Department of Microbiology

ries and agencies are excellent for qualified graduates. A one-year hospital internship in an accredited school of medical technology is required after graduation for those interested in becoming certified medical technologists. Career opportunities in this area are also excellent. Majors may also prepare for advanced degrees and easily complete the requirements for application to medical, dental, veterinary or other professional schools.

At the graduate level, the department offers programs leading to the degrees of Master of Science in Microbiology and Doctor of Philosophy. Areas in which the department is prepared to direct research include the biology of membranes, bioremediation, molecular genetics, molecular basis of cell-cell interactions and virulence, microbial differentiation, cellular and tumor immunology and the regulation of the immune response, diseases of insects and their development of resistance to microbial pathogens.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

At least 40 of the total hours required for the bachelor’s degree in this department must be in 300-400-level courses. For majors, a total of 28 credit hours must be in the departmental courses and a minimum g.p.a. of 2.0 is required in these courses for graduation. None of the core courses or departmental courses may be taken pass, fail.

Microbiology Option

GenCB 301; Micro 301, 310, 311, 412, 413, 414, 415, 9 additional hours Micro; and one advanced lecture-lab course outside the department are required as a minimum. Those contemplating graduate study are urged to take Chem 340-343 series (in lieu of Chem 240).

Medical Technology

Same as microbiology option except that Micro 350 and Zool 417 are required. Micro 350 partially fulfills requirement for 9 credits of Micro electives and Zool 417 fulfills the requirement for one advanced lecture-lab course outside the department. Zool 251 is strongly recommended. To become a certified medical technologist, a one-year internship at an accredited school of medical technology is required after graduation.

M ICROBIOLOGY AND MEDICAL TECHNOLOGY DEGREE PROGRAMS

(FYDA)

Freshman Year

First Semester

Bio S 103 [B] (GER) 4
Chem 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3

Second Semester

Bio S 104 [B] (GER) 4
Chem 106 [P] (GER) 4
GenEd 111 [A] (GER) 3
Math 140 [N] (GER) 4

Sophomore Year

First Semester

Chem 240† 4
Communication Proficiency [C, W] (GER) 3

Intercollegiate [I, G, K] (GER) 3
Phys 101 [P] (GER) 4

Second Semester

BC/BP 364† 4
BC/BP 366† 1
GenCB 301 4
Phys 102 [P] (GER) 4
Social Sciences [S, K] (GER) 3

Junior Year

First Semester

Arts & Humanities [H, G] or Social Sciences [S, K] (GER) 6
Chem 220 2
Chem 222 2
Micro 301 4
Complete Writing Portfolio

Second Semester

Arts & Humanities [H, G] or Social Sciences [S, K] (GER) 6
Micro 310 3
Micro 311 2
Micro Elective† 3

Senior Year

First Semester

Degree Program Elective† 4
Micro 412 3
Micro 413 [M] 2
Micro Electives‡ 3-6
Elective 3

Second Semester

Micro 414 3
Micro 415 [M] 2
Micro 496 1
Micro Electives‡ 6
Tier III Capstone (GER) 3
Electives 3

† Pre-med students and those interested in advanced degrees should take Chem 340, 341, 342, and 343, a one-year course in organic chemistry.
‡ Micro electives may include Micro 331, 350, 416, 417, 420, 428, 431, 462, 464. A total of three courses (9 credits) is required.

Minor in Microbiology

A minimum of 16 semester hours including Micro 301 and the remaining at the 300-400 level selected from: Micro 310, 311, 331, 350, 412, 413, 414, 415, 416, 417, 420, 428, 431, 462, 464, 499.

Transfer Students

Students transferring from other institutions as juniors should have taken the equivalent of Bio S 103; 104; Chem 105 or 106, 220, 222 or 240 (preferably both); Engl 101; Micro 301; one year of one modern foreign language in college or two years in high school; and part of the required hours in social sciences and arts and humanities. The other required courses normally taken in the first two years may be taken in the 300-400-level program.

Preparation for Graduate Study

For admission to graduate study in microbiology a student should have a bachelor’s or master’s degree and should present evidence of proficiency in academic work. Normally the applicant should have an undergraduate major in microbiology, biological science, molecular biology, or chemistry; however, candidates with a good record in related fields may be well prepared for certain areas of advanced study in microbiology.

Description of Courses

Microbiology

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 Bio S 103 and 104. Credit not granted for both Micro 101 and 102.

102 Introductory Microbiology 4 (3-3) Description of microorganisms and the role they play in disease production, public health, the environment and in commercial processes. Not for students who have taken Bio S 103 and 104. Credit not granted for both Micro 101 and 102.

301 General Microbiology 4 (3-3) Prereq Bio S 104; Chem 240 or c/l. Structure, function, nutrition, physiology and genetics of microbes and their application to immunology, pathology, microbial diversity and environmental microbiology.

310 Medical Microbiology 3 Prereq BC/BP 364 or c/l; Micro 301. Microbial pathogens and their relationship to disease.

311 Diagnostic Medical Bacteriology 2 (0-6) Prereq Micro 310 or c/l. Techniques and tests for the identification of bacteria pathogenic for humans.

331 Microbial Ecology 3 Prereq Bio S 104; Chem 240 or c/l. Discussion of microorganisms behavior in nature and microbial activities influence on ecological balance.

350 Clinical Diagnosis 4 (2-6) Prereq Bio S 104; organic chemistry. Theory, techniques, and interpretation of urinalysis, clinical chemistry, and hematology.

406 Introduction to Immunology 2 Prereq Bio S 104, Chem 240. Immunology for science majors and students in professional programs. Credit not granted for both Micro 406 and 412.

412 Immunology 3 Prereq Micro 301; org chem. Principles of basic immunology. Credit not granted for both Micro 412 and 406. Credit not granted for both Micro 412 and 512.

413 [M] Immunology Laboratory 2 (0-6) Prereq Micro 412 or c/l. Fundamental principles and techniques used in immunology.

414 General Virology 3 Prereq BC/BP 364; GenCB 301; organic chemistry. The biology of bacterial, animal, and plant viruses. Credit not granted for both Micro 414 and 514. Cooperative course taught by WSU, open to UI students (Bact 130).

415 [M] General Virology Laboratory 2 (0-6) Prereq Micro 414 or c/l. Laboratory techniques concerning cultivation and characterization of viruses. Cooperative course taught by WSU, open to UI students (Bact 130).
416 Food and Applied Microbiology 2 Prereq Micro 301. Purpose for enumeration, detection and identification of microorganisms in food products; physical, chemical and environmental factors influencing growth and survival of foodborne microorganisms; pathogenic and spoilage microorganisms in food and their control. Cooperative course taught by UI (FST and MMBB 416), open to WSU students.

417 Food Microbiology Laboratory 2 (0-6) Prereq Micro 416 or c/. Methods of enumeration, detection, and identification of spoilage and pathogenic microorganisms in foods. Cooperative course taught jointly by WSU and UI (FST and MMBB 417).

420 Epidemiology 3 Prereq junior standing. Study of diseases in human populations; concepts of epidemiology, disease rates, susceptibility and risk factors, screening for disease, and prevention. Cooperative course taught by WSU, open to UI students (MMBB 420).

428 Basic and Applied Microbial Physiology 3 Prereq BC/BP 364, Micro 301. Basic microbiological physiology and its relevance to the processes of applied microbiology. Credit not granted for both Micro 428 and 528.

431 Soil Microbial Ecology 3 Same as SoilS 431.

452 Environmental Microbiology 3 Prereq college-level biology, microbiology, organic chemistry. Microbial contamination and interactions between micro-organisms and the environment, methods and mechanisms of bioremediation. Credit not granted for both Micro 452 and 552.

462 Microbial Genetics 3 Prereq BC/BP 364 or GenCB 301; Micro 301. Genetics of bacteria, bacteriophages and plasmids; regulation of gene expression; genetic manipulation of micro-organisms.

464 Techniques in Molecular Biology 3 (1-6) Prereq BC/BP 482, GenCB 402, or Micro 301. Basic principles and techniques of gene manipulation.

489 Biotechnology for High School Teachers 3 (1-6) Prereq high school science teaching experience. Methodologies illustrating the use of microbes to implement laboratory exercises in biotechnology.

495 Internship in Microbiology V 2-4 May be repeated for credit; cumulative maximum 2 hours. Prereq Micro 301. Experience in work related to the student's career interests. S, F grading.

496 Senior Project in Microbiology 3 Prereq senior Micro major. Laboratory research or library project; seminar presentation.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

512 Immunology 4 The immune system at the animal, cellular, and molecular levels. Credit not granted for both Micro 412 and 512. Cooperative course taught by WSU, open to UI students (Bact 512).

514 General Virology 3 Graduate-level counterpart of Micro 414; additional requirements. Credit not granted for both Micro 414 and 514.

528 Basic and Applied Microbial Physiology 3 Graduate-level counterpart of Micro 428; additional requirements. Credit not granted for both Micro 428 and 528.

529 Molecular Techniques in Microbiology 3 (1-6) Current molecular biology techniques applied to DNA and protein isolation and characterization: Southern and western blots, PCR, PAGE, computer cloning. Cooperative course taught by WSU, open to UI students (Bact 529).

541 Seminar 1 May be repeated for credit. Literature reviews and research reports.

552 Environmental Microbiology 3 Graduate-level counterpart of Micro 452; additional requirements. Credit not granted for both Micro 452 and 552.

560 Molecular Genetics 3 Same as GenCB 560.

562 Advanced Pathogenic Mechanisms 3 Prereq by interview only. Detailed analysis of microbial virulence factors and host factors involved in infection and infectious disease. Cooperative course taught jointly by WSU and UI (MMBB 562).

565 Molecular Biology 1 3 Same as BC/BP 565.

566 Molecular Biology II 3 Same as GenCB 566.

568 Microbial Transformation 3 Prereq BC/BP 364, Micro 428. Use of microbes in the biodegradation of wastes and bioprocessing to produce valuable chemical stocks. Cooperative course taught by UI (MMBB 568), open to WSU students.

570 Advanced Immunology 3 Prereq introductory course in immunology. Cellular and molecular regulation of the immune response. Cooperative course taught by WSU, open to UI students (VS 570).

580 Selected Topics in Microbiology 1 May be repeated for credit; cumulative maximum 2 hours. Prereq 9 hours, Micro 414/514 or c/. By interview only. Selected topics in virology using the current literature.

582 Advanced Topics in Microbiology V 1-3 May be repeated for credit.

590 Selected Topics in Immunology 1 May be repeated for credit; cumulative maximum 2 hours. Prereq course in immunology. Seminar series on advances in immunology.

592 Selected Topics in Virology 1 May be repeated for credit; cumulative maximum 2 hours. Prereq 9 hours, Micro 414/514 or c/. By interview only. Selected topics in virology using the current literature.

593 Research Proposal 2 Written and oral presentation of a research proposal.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Department of Military Science

Professor and Department Chair, Lieutenant C. H. Armstrong, Assistant Professors, Captain S. Blanton, Captain J. Burick, Captain G. Ready; Senior Instructor, Master Sergeant Melvin L. G. Salas; Instructor, Sergeant First Class T. Cotton.

The Department of Military Science at WSU is designed to supplement a student’s academic studies by motivating, educating, and training qualified students to serve as commissioned officers in all components of the U.S. Army. The military science academic, professional and technical education and training complement the educational programs at WSU. A copy of the student’s birth certificate is required for participation in the ROTC program.

The military science curriculum comprises a two-year basic course (freshman and sophomore years), and a two-year advanced course (junior and senior years). The basic course is open to all WSU students. Enrollment into the advanced course is highly competitive and is offered only with the approval of the department chair. During the summer between the junior and senior years of military science, cadets attend ROTC Advanced Camp (six weeks at Fort Lewis, WA). It is a training/evaluation/leadership/practicum opportunity taught by ROTC faculty from across the country and includes cadets from across the United States.

At WSU, military science courses are academically challenging, and are taught by WSU, open to UI students. Basic and advanced course students are required to participate in leadership labs which are conducted throughout the year. Some events provide instruction in individual military skills and group leadership techniques. Practical leadership experience is also gained through these labs since they are organized and conducted by the cadets under faculty supervision.

In addition to the military science courses, in order to be commissioned into the U.S. Army, cadets are required to complete courses in mathematics, computer science, military history, human behavior, and written communication. Information as to specific courses which need to be completed is available in the department.

Advanced course cadets receive a monthly stipend of $150 per month during the school year to cover the additional costs associated with advanced course standing. Competitively awarded scholarships are available which, in addition to the monthly stipend, pay full tuition, enrollment fees and defray the costs of necessary books and supplies. High school students may apply for a four-year Army ROTC scholarship in the fall of their senior year. All students may apply for two- or three-year scholarships whether or not they are enrolled in the ROTC Program. Additionally, scholarships are available on a competitive basis for students desiring to earn a commission in the National Guard and Army Reserve, without a commitment to full-time active duty upon graduation.

Upon successful completion of the advanced course and graduation from WSU, cadets selected for commissioning are commissioned as Army Reserve or Regular Army officers and serve in Army Reserve, National Guard, or active Army units. Cadets may also compete for active duty commissions in the Regular Army. Those who wish to seek advanced degrees may apply for a delay to active duty in order to complete their graduate studies before entering active service.

Description of Courses

Basic Course

MIS 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.
Molecular Biology Minor

Graduate training in molecular biology is performed under numerous life science graduate programs on campus. An undergraduate minor in molecular biology is available, jointly administered by the faculties of biochemistry/biophysics, genetics and cell biology, and microbiology. Students majoring in these three areas and possibly in other areas may satisfy the requirements for this minor. Requirements of 18-21 credit hours are as follows:

- BC/BP 364
- BC/BP 366, GenCB 402, or Micro 464
- BC/BP 463, GenCB 502, or Micro 462
- GenCB 301
- GenCB 450
- Micro 301

Further information can be obtained from the Department of Genetics and Cell Biology.

School of Music and Theatre Arts

The School of Music and Theatre Arts offers courses of study leading to the degrees of Bachelor of Music, Bachelor of Arts in Music, Bachelor of Arts in Theatre Arts and Drama, Master of Arts in Music, Master of Arts in Theatre Arts and Drama, and Master of Arts in the Teaching of Theatre Arts and Drama.

Endorsement curricula offered in cooperation with College of Education provide certification for teachers of music or drama. Minors in music and drama are available as are many courses, performance opportunities, and other activities for students interested in music and theatre.

Music


The Music Program is committed to a tradition of excellence in performance, teaching, and the study of the theoretical, historical, and philosophical aspects of the musical arts. Its chief objectives are:

- to provide students with a foundation in the analysis and criticism of music and guide them toward acquiring discriminating judgment in a progressive musical environment;
- to train teachers of music who can be effective in contemporary society;
- to assist aspiring performers and composers to reach the highest potential of artistic capacity;
- to contribute toward a varied humanistic education within the university community.

As an integral part of the academic program, an active schedule of recitals and concerts by students, faculty, and guest artists is maintained. The Music Program is a fully accredited member of the National Association of Schools of Music.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

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-top level recital and concert study areas, and academic major (and minor if any) with a C or better in each course. Students certifying as majors in any of the option IV endorsements must also certify as majors in the College of Liberal Arts.

BACHELOR OF MUSIC

This program offers majors for specialization in performance, composition and music education. At least 42 of the hours required for this degree must be 300-400-level courses.

The following curricula are designed to prepare students as professional musicians and teachers of music.

Students following option I, II, III, or V are required to present an acceptable junior and senior recital in the major performance medium. Students following any of the option IV endorsements are required to present an acceptable senior half recital in the major performance medium.

Students following any of the option IV endorsements must have a minimum g.p.a. of 2.5 in all of the following areas: cumulative g.p.a., 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 option IV endorsements must also certify as majors in the College of Education.

MAJOR IN PERFORMANCE

FIRST AND SECOND YEAR REQUIREMENTS

The first and second year requirements are common to the Brass, Percussion, Strings, Winds; Keyboard; and Voice degree programs:

Freshmen Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Degree Program Course, if necessary</td>
<td>1</td>
</tr>
<tr>
<td>Mus 251*</td>
<td>3</td>
</tr>
<tr>
<td>Mus 252*</td>
<td>3</td>
</tr>
<tr>
<td>Mus Ensemble</td>
<td>1</td>
</tr>
<tr>
<td>Mus Private Lessons</td>
<td>4</td>
</tr>
<tr>
<td>Science Elective</td>
<td>1</td>
</tr>
<tr>
<td>Tier I Science [Q] (GER)</td>
<td>3</td>
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</table>

Second Semester

<table>
<thead>
<tr>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Biological Sciences [B] (GER)</td>
</tr>
<tr>
<td>Degree Program Course, if necessary</td>
</tr>
<tr>
<td>Mus 161*</td>
</tr>
<tr>
<td>Mus 253*</td>
</tr>
</tbody>
</table>
### School of Music and Theatre Arts

#### Performance Degree Programs

**PERFORMANCE DEGREE PROGRAM (OPTION III - 138 HOURS)**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td></td>
</tr>
<tr>
<td>Communication, [C, W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Mus 351</td>
<td>3</td>
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<tr>
<td>Mus 352</td>
<td>1</td>
</tr>
<tr>
<td>Mus Ensemble</td>
<td>1</td>
</tr>
<tr>
<td><strong>Second Semester</strong></td>
<td></td>
</tr>
<tr>
<td>Degree Program Course, if necessary</td>
<td>2 or 3</td>
</tr>
<tr>
<td>Math Proficiency [N] (GER)</td>
<td>3</td>
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<tr>
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1 Fall only.
2 Spring only.
3 Chosen from Mus 428-444.

### KEYBOARD PERFORMANCE DEGREE PROGRAM (OPTION Ia - 138 HOURS)

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<td>Electives</td>
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1 Fall only.
2 Spring only.
3 Chosen from Mus 428-444.
4 Ensemble required if enrolled for applied music, but not required for degree; may be used as electives.

### VOICE PERFORMANCE DEGREE PROGRAM (OPTION II - 139 HOURS)

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<td>Mus Private Lessons</td>
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1 Fall only.
2 Spring only.
3 Chosen from Mus 428-444.
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**MAJOR IN COMPOSITION**

**COMPOSITION DEGREE PROGRAM (OPTION V - 141 HOURS)**

Requirements include: Upper division exam; piano proficiency exam; 2.5 average in all music courses; C or better in all music courses; junior and senior recitals.

**Freshman Year**

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**MAJOR IN MUSIC EDUCATION**

**MUSIC EDUCATION FIRST AND SECOND YEAR REQUIREMENTS**

The first- and second-year requirements are common to the Broad Endorsement, Choral/General Endorsement, and Instrumental/General degree programs. Consult the department for nine-semester course plans.

**Freshman Year**

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**Sophomore Year**

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**BROAD ENDORSEMENT DEGREE PROGRAM (OPTION Iva - 156 HOURS)**

Requirements include: C or better in all music and education courses; 2.5 music average; 2.5 educ-
### Bachelor of Arts in Music (123 Hours)

This four-year program is designed to meet the needs of students wishing to follow a liberal arts or music major. All students must complete a minimum of 73 credits in music. Additional requirements include:

- A minimum of 47 credits in music, including courses in music history, music theory, and performance.
- A minimum of 20 credits in non-music courses outside the School of Music and Theatre Arts, including the General Education Requirements.
- A minimum of 40 credits in upper-division courses.
- A minimum of 40 credits in courses at the 300-400 level.
- A minimum of 120 credits in total.

#### First Semester

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<td>T &amp; L 317/18</td>
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#### Second Semester

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#### Junior Year

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<th>Course</th>
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<tr>
<td>Mus 360 [M] (GER)</td>
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<tr>
<td>Mus 480</td>
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<tr>
<td>Mus 483</td>
<td>1</td>
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<tr>
<td>Mus 488</td>
<td>2</td>
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<td>Mus 493</td>
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<tr>
<td>Mus Private Lessons</td>
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<td>T &amp; L 303</td>
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<td>Complete Writing Portfolio</td>
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#### Instrumental/General Endorsement Degree Program

This four-year program is designed to meet the needs of students wishing to follow a liberal arts or music major. All students must complete a minimum of 73 credits in music. Additional requirements include:

- A minimum of 47 credits in music, including courses in music history, music theory, and performance.
- A minimum of 20 credits in non-music courses outside the School of Music and Theatre Arts, including the General Education Requirements.
- A minimum of 40 credits in upper-division courses.
- A minimum of 40 credits in courses at the 300-400 level.
- A minimum of 120 credits in total.

#### First Semester

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<th>Course</th>
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<tr>
<td>Mus 360 [M]</td>
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#### Second Semester

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#### Freshman Year

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<th>Course</th>
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<tr>
<td>English 101 [W] (GER)</td>
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<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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<td>Mus Ensemble</td>
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<td>Musical Lessons</td>
<td>2</td>
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<td>Tier I Science [Q] (GER)</td>
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#### Sophomore Year

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<th>Course</th>
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<tr>
<td>Biological Sciences [B] (GER)</td>
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<td>Mus 161</td>
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<td>Mus 182</td>
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<td>Mus 253</td>
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#### Sophomore Year

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<th>Course</th>
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<tr>
<td>Communication [C,W] (GER)</td>
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<td>GenEd 110 [A] (GER)</td>
<td>3</td>
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<tr>
<td>Math Proficiency [N] (GER)</td>
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<tr>
<td>Mus 351</td>
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<td>Mus 352</td>
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<td>Mus Ensemble</td>
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<th>Course</th>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Mus 281</td>
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<td>Mus 353</td>
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<td>Mus 354</td>
<td>1</td>
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<td>Mus Ensemble</td>
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<tr>
<td>Musical Lessons</td>
<td>2</td>
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<tr>
<td>Physical P [Science] (GER)</td>
<td>4</td>
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School of Music and Theatre Arts

Junior Year

First Semester
- 200-400-level Non-Music Electives 6
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Intercultural [I,G,K] (GER) 3
- Mus 360 [M]^ 3
- Mus Ensemble^ 1
- Complete Writing Portfolio

Second Semester
- 200-400-level Non-Music Elective 6
- Arts & Humanities [H,G] (GER) 3
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Mus 361 [M]^ 3
- Mus Ensemble^ 1

Senior Year

First Semester
- 200-400-level Non-Music Elective 8
- 300-400-level Music Elective 4
- Social Sciences [S,K] (GER) 3

Second Semester
- 200-400-level Non-Music Electives 8
- 300-400-level Music Elective 4
- Tier III Capstone (GER) 3

^ Music performing group required if enrolled for applied music, but not required in degree or class piano credits; not required in degree.
* Fall only.
1 Chosen from Mus 428-444.
* Students may substitute one 3-credit Tier I Science and one 1-credit Science Elective.
* Spring only.

MASTER OF ARTS IN MUSIC

Please consult the current WSU Graduate Study Bulletin.

Music Minor and Supporting Teaching Endorsements

A 22-24-hour music minor course of study is available. For details contact the Music Program. Also available are supporting teaching endorsements in music for students whose primary teaching endorsement is in other majors.

Theatre Arts and Drama

Associate Professor and Theatre Arts and Drama Coordinator, G. R. Caldwell; Professor, L. H. Harris; Associate Professors, T. Converse, L. Furman, W. H. Sheppard, R. G. Slabaugh.

The Theatre Arts and Drama Program provides students with a foundation of studies in production, history, and analysis of the theatre arts within a liberal arts context. As an integral part of the academic program, WSU Theatre presents a regular schedule of productions by faculty and students. The undergraduate curriculum offers a well-rounded background in all of the major disciplines of theatre.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

Students seeking the Bachelor of Arts in Theatre Arts and Drama must complete the General Education Requirements plus those for the College of Liberal Arts. Students pursuing a teaching endorsement option must have a minimum g.p.a. of 2.5 in all of the following areas: cumulative g.p.a., Professional Education Core with a C or better in each course, and academic major with a C or better in each course (and minor if any). Students certifying as majors in teacher endorsement curricula must also certify as majors in the College of Education.

THEATRE ARTS AND DRAMA DEGREE PROGRAM (120 HOURS) ✓FYDA

Freshman Year

First Semester
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Science Elective* 1
- Theat 145 3
- Theat 260 3
- Tier I Science [Q] (GER) 1 3

Second Semester
- Communication Proficiency [C,W] (GER) 3
- GenEd 111 [A] (GER) 3
- Math Proficiency [N] (GER) 3 or 4
- Theat 163 3
- Theat 360 3

Sophomore Year

First Semester
- Intercultural [I,G,K] (GER) 3
- Physical Sciences [P] (GER) 4
- Social Sciences [S,K] (GER) 3
- Theat 496 2

Second Semester
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Biological Sciences [B] (GER) 4
- Theat 361 3
- Theat 362 3
- Theat 396 1

Junior Year

First Semester
- Literature Elective [H] (GER) 3
- Theat 363 or 364 3
- Theat 365 3
- Theat 402 1
- Theat 496 2
- Elective 3
- Complete Writing Portfolio

Second Semester
- Literature Elective [H] (GER) 3
- Theat 264 or 294^ 2
- Theat 363 3
- Theat 366 3
- Theat 402 1
- Theat 467 3
- Theat 496 1

Senior Year

First Semester
- Theat 401 or 465 3
- Theat 468 3
- Electives 9

Second Semester
- Theat 462 or 463 3
- Tier III Capstone (GER) 3
- Electives 6

^ Students may substitute one 4-credit Tier I Science for both the 3-credit Tier I Science and the 1-credit Science Elective.
* Spring only course.

MASTER OF ARTS IN THEATRE ARTS AND DRAMA—MASTER OF ARTS IN TEACHING IN THEATRE ARTS AND DRAMA

Please consult the current WSU Graduate Study Bulletin.

Theatre Minor and Supporting Teaching Endorsements

A drama minor is available. For details, contact the Theatre Program. Also available is a supporting teaching endorsement in drama for students whose primary teaching endorsement is in another field.

Description of Courses

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 beyond tuition for either performance studies or the use of practice facilities. 100-level performance studies in selected instruments are open to any student without audition. The 200-level denotes group or private instruction for advanced non-music majors by special permission of the Director. The 300-400 level performance study must enroll in a music theory or performance study medium by music majors. All music majors are required to perform in one or more of the music core courses through class instruction. Performance instruction is offered at the 300-400 level for music majors and, by special permission of the Director, to advanced non-music majors who meet all requirements for music majors as listed below. All students enrolled in a 300-400 level performance study instruction are required to attend weekly convocation (student recital), attend recitals as required, participate in at least one approved music department ensemble, and take jury examinations at the end of each term. For enrollees in Mus 303, 304, 403, the required ensemble is Mus 431 or 432. The number of credits required for these courses is 3. Students enrolled in 300- and 400-level performance study must enroll in a music history course each semester until music core course requirements have been completed. No student will be permitted to enroll in 300-400-level performance studies unless all of these criteria are met. In addition, each music major must pass the piano proficiency exam, as a precondition to 400-level standing.

Performance studies may not be taken on a pass, fail basis or audited. Enrollment in performance studies by university employees under the fee waiver policy is by permission of the director.
Nonmajor and Secondary Performance Studies

Lower-division courses and Mus 319 available for 2 credits only and may be repeated for credit. Mus 319 is designed for 300-400-level study on secondary instrument or voice by music majors.

Class Instruction

Mus
102 Piano
103 Voice
120 Guitar

Studio Instruction

Mus
201 Organ
202 Piano
203 Voice
204 Horn
205 Trumpet
206 Trombone
207 Baritone
208 Tuba
209 Percussion
210 Violin
211 Viola
212 Violoncello
213 Contrabass
214 Flute
215 Oboe
216 Clarinet
217 Bassoon
218 Saxophone
220 Guitar

319 Secondary Performance Study 2 Prereq music major. Instruction on instruments or voice other than major performing medium.

Major Performance Studies

Admission to 300 level is by audition only. Students progress from the 300 level to the 400 level by upper-division examination before a representative committee of the faculty. This evaluation will include all aspects of the student’s program, including performance, literature, and core music requirements.

The 500 level represents credit given for graduate study and is limited to enrolled graduate students pursuing a master’s degree. Credit for the 300, 400 and 500 levels is granted on the basis of 2 credits for one half-hour lesson per week and 4 credits for two half-hour lessons per week. All major performance studies may be repeated for credit.

Mus
301, 401, 501 Organ
302, 402, 502 Piano
303, 403, 503 Voice
304, 404, 504 French Horn
305, 405, 505 Trumpet
306, 406, 506 Trombone
307, 407, 507 Baritone
308, 408, 508 Tuba
309, 409, 509 Percussion
310, 410, 510 Violin
311, 411, 511 Viola
312, 412, 512 Violoncello
313, 413, 513 Contrabass
314, 414, 514 Flute
315, 415, 515 Oboe
316, 416, 516 Clarinet
317, 417, 517 Bassoon
318, 418, 518 Saxophone
320, 420, 520 Guitar

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.

Music Performing Groups

The lab-lecture ratios of these courses reflect the number of rehearsal hours per week (for example, 0-4 equals 4 hours of rehearsal weekly). All courses (except Mus 430) in this section are repeatable for credit up to a maximum of 8 credits. The Music Program limits to 4 the number of music performing group credits that may be counted toward the 30 credit hour minimum for the Master of Arts in Music. All 500-level courses in this section are offered con-jointly with 400-level courses by the same name. The usual prohibition against credit for both 400-500-level credit for conjoint courses does not apply to music performing groups.

Mus
428 Opera Workshop 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Public performance may be required.
429 Crimson Company Quartet 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Popular music performances with choreography. Public performances required.
430 Crimson Company Show Choir 2 (0-8) May be repeated for credit; cumulative maximum 16 hours. By audition only. Popular music performances. Prereq musical performance, psychology of music, history of music, theory of music.
431 Concert Choir 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Public performances each semester.
432 University Singers 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Popular music performances. Prereq musical performance, psychology of music, history of music, theory of music.
433 Vocal Ensembles 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Prereq musical performance, psychology of music, history of music, theory of music.
434 Symphony Orchestra 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Prereq musical performance, psychology of music, history of music, theory of music.
435 Chamber Ensembles 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Prereq musical performance, psychology of music, history of music, theory of music.
436 Symphonic Band 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Public performances.
437 Wind Symphony 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Public performances.
438 Jazz-Lab Band 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Public performances.
441 Accompanying 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. Gradu-ate-level counterpart of Mus 441; additional requirements.

Theoretical Studies

Mus
515 Music Fundamentals I 3 Notation and performance of music fundamentals: pitch, rhythm, scales, key signatures, and intervals.
523 Materials and Structures of Music II 3 Prereq Mus 515. Introduction to performance and theory fundamentals: melody, rhythm, scales, intervals, key signatures, triads; preparatory for Mus 525.
531 Concert Choir 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. Graduate-level counterpart of Mus 431; additional requirements.
532 Vocal Ensembles 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. Graduate-level counterpart of Mus 432; additional requirements.
534 Symphony Orchestra 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. Graduate-level counterpart of Mus 434; additional requirements.
535 Chamber Ensembles 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. Graduate-level counterpart of Mus 435; additional requirements.
537 Wind Symphony 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. Graduate-level counterpart of Mus 437; additional requirements.
538 Jazz-Lab Band 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. Graduate-level counterpart of Mus 438; additional requirements.
541 Accompanying 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. Graduate-level counterpart of Mus 441; additional requirements.

Theory

Mus
151 Music Fundamentals I 3 Notation and performance of music fundamentals: pitch, rhythm, scales, key signatures, and intervals.
152 Music Fundamentals II 3 Prereq Mus 151. Introduction to performance and theory fundamentals: melody, rhythm, scales, intervals, key signatures, triads; preparatory for Mus 152.
153 [H] Musical Style in Composition 3 Introduction to musical style in composition, history, and analysis including theory fundamentals, history survey, and beginning composition.
181 Class Piano I 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. Prereq minors, and elem educ majors only. By audition only. Pedal, sightreading, transposition, playing by ear, chord progressions and melody harmonization.
182 Class Piano II 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. By audition only. Continuation of Mus 181. Scales, arpeggios, blocked and broken chords; repertoire to complement individual skills and theoretical knowledge.
251 Materials and Structures of Music I 3 By examination. Overtones, melody, rhythm, intervals, tonality, modality, pentascales, two-voiced counterpoint, analytical techniques, composition.
252 Applied Theory I 1 (0-3) By examination. Ear training, conducting, rhythmic reading, sight singing, keyboard, dictation.
253 Materials and Structures of Music II 3 Prereq Mus 251, 252. Writing, analysis of three- and four-voiced homophonic and contrapuntal music, diatonic emphasis, seventh chords, modulation.
254 Applied Theory II 1 (0-3) Prereq c// in Mus 253. Ear training, sight singing, keyboard.
256 Seminar in Composition 1 May be repeated for credit; cumulative maximum 4 hours. Prereq Mus 254. By interview only. Original writings in small forms.
Survey of Music Literature

Exploration of predominantly western music through demonstrations, performances, lectures, concerts, and discussions.

160 [H] Survey of Music Literature Exploration of predominantly western music through demonstrations, performances, lectures, concerts, and discussions.

161 Introduction to Critical Studies in Music Exploration of predominantly western music through demonstrations, performances, lectures, concerts, and discussions.

163 [G] World Music Exploration of music from a global perspective through demonstrations, performances, lectures and discussion.

257 Jazz Improvisation May be repeated for credit; cumulative maximum 3 hours. Melodic jazz improvisation.

281 Class Piano I 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. Prereq Mus 182. By audition only. Principles, functional keyboard.

351 Materials and Structures of Music III Prereq Mus 253, 254. Vertical, linear and formal relationships of chromatic music; writing, analysis, coordinated with aural study.

352 Applied Theory I 1 (0-3) Prereq Mus 254. Continued musical development in ear training, sight singing, applied theory, keyboard dictation.

353 Materials and Structures of Music IV Prereq Mus 251. Vertical, linear and formal relationships of 20th century music; writing, analysis, listening.

354 Applied Theory IV 1 (0-3) Prereq Mus 252. Continued development in ear training, sight singing, keyboard and dictation, emphasizing 20th century music.

355 Seminar in Jazz Arranging/Composition Arranging and composing for instrumental jazz ensembles.

451 Seminar in Counterpoint May be repeated for credit; cumulative maximum 4 hours. Prereq Mus 253. Contrapuntal techniques of the 16th and 18th century with original stylistic writing.

452 Electronic Music 2 (1-3) Prereq Mus 253. Introduction to computer-controlled digital, analog, and sampling synthesis; topics include sequencer, waveform editing, and creative projects.

453 Form and Analysis 2 Prereq Mus 253. Organization of musical works according to the relationships in sectional divisions, thematic divisions, and tonal bases.

455 Seminar in Instrumentation May be repeated for credit. Prereq Mus 252. For various instrumental combinations.

456 Seminar in Advanced Composition V 1-3 May be repeated for credit. Prereq upper-level composition review. Original writing in small and large forms (traditional and experimental).

457 Seminar in Analysis 2 May be repeated for credit; cumulative maximum 4 hours. Prereq Mus 453 or c/. Required of all graduate students. Applications of analytical techniques to develop a basis for musical understanding and interpretation.

458 Seminar in Music Theory 2 May be repeated for credit; cumulative maximum 4 hours.

459 Graduate Seminar in Advanced Composition V 2 (1-2) or 3 (1-4) May be repeated for credit; cumulative maximum 10 hours. Prereq by interview only. The creation of works for either traditional acoustic ensembles or electro-acoustic media.

History and Literature

Mus 160 [H] Survey of Music Literature Exploration of predominantly western music through demonstrations, performances, lectures, concerts, and discussions.

161 Introduction to Critical Studies in Music Historical styles of music through analytical listening, score examination, and source materials.

163 [G] World Music Exploration of music from a global perspective through demonstrations, performances, lectures and discussion.


362 [H] History of Jazz 3 History of jazz in chronological sequence from early Dixieland to jazz-rock combinations of 1980s; stylistic and improvisational developments.

363 [G] Women of Note 3 Survey of the world’s history of women in music in their respective social and political contexts.

364 [H] Musical Theatre 3 Survey of musical theatre from Vienna to Broadway, lyric drama from Mozart to the present.

369 Topics Study Abroad 3 May be repeated for credit; cumulative maximum 6 hours.

465 Seminar in Major Performance Literature 2 May be repeated for credit; cumulative maximum 6 hours. Prereq Mus 351 or c/. Survey of performance of solo and chamber literature for voice, keyboard, strings, winds, brass, percussion.

466 Seminar in Band Literature and Performance 1 May be repeated for credit; cumulative maximum 4 hours. Survey and analysis of recently published literature for use in instrumental music programs of the public schools.

467 Introduction to Graduate Studies in Music Required of all graduate students in Mus. Basic bibliographic and research techniques; written presentations related to area of emphasis.

561 Seminar in Literature of 20th Century Music 2 Prereq Mus 351. Impressionism, expressionism, neoclassicism, neoromanticism, jazz and recent electronic music.

562 Symphonic Literature 2 Symphony orchestra and symphonic form from its beginning to modern times studied from the score.

566 Seminar in Music History 2 May be repeated for credit; cumulative maximum 6 hours. Prereq Mus 361. Various historic periods and composers.

Music Education, Pedagogy, and Conducting

Mus 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 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.


481 Fundamentals of Conducting 1 (0-3) Prereq Mus 254. Basic techniques, patterns, preparations and releases; musical styles and score reading for beginning conductors.

482 Instrumental Conducting 1 (0-3) Prereq Mus 481. Score preparation of orchestra and band literature; transpositions; clefs; rehearsal techniques for instrumental ensembles.

483 Choral Conducting 1 (0-3) Prereq Mus 481. Conducting choral and vocal jazz ensembles.


487 String Techniques 2 (0-6) Prereq Mus 490. String techniques, materials and methods for music education majors.

488 Choral Methods and Materials 1 2 (0-6) Prereq Mus 490. 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 2 2 Prereq Mus 488/588. Development of skills in choral arranging, curriculum construction, research, and job placement. Credit not granted for both Mus 489 and 590.

490 General Music Material/Methods 4 (3-2) Prereq Mus 491. Materials and methods for general music education majors; multiculturalism, collaboration, developmental curriculum and research issues; addressing national standards; observations. Credit not granted for both Mus 490 and 590.

519 Voice Pedagogy 2 (1-3) Pedagogy methods course in voice; anatomy of the singing process; methodology of teaching voices in various learning and teaching styles. Credit not granted for both Mus 491 and 591.

519 Wind and Percussion Techniques I 2 (0-6) Prereq Mus 481. Brass, woodwind, and percussion techniques for music education majors.

519 Wind and Percussion Techniques II 2 (0-6) Prereq Mus 493. Brass, woodwind and percussion techniques; elementary instrument conducting for music education majors.

597 Directed Student Teaching in Music 4 Prereq maintain 2.5 g.p.a. in primary, supporting, and professional education core courses; completion of all required courses. By interview only. Supervised teaching in public schools (full day, full semester), including a two-hour weekly seminar reflecting on effective teaching. S, F grading.

575 Advanced Conducting 2 or 3 May be repeated for credit. Prereq Mus 482. Rehearsing orchestras, bands, and choruses. Public performance may be required.

586 Seminar in Piano Pedagogy 2 Graduate-level counterpart of Mus 486; additional requirements. Credit not granted for both Mus 486 and 586.

588 Choral Methods and Materials 1 2 (0-6) Graduate-level counterpart of Mus 488; additional requirements. Credit not granted for both Mus 488 and 588.

589 Choral Methods and Materials 2 2 Graduate-level counterpart of Mus 489; additional requirements. Credit not granted for both Mus 489 and 589.

590 General Music/Materials/Methods 4 Graduate-level counterpart of Mus 490; additional requirements. Credit not granted for both Mus 490 and 590.
School of Music and Theatre Arts

591 Vocal Pedagogy 2 (1-3) Prereq graduate standing. Graduate-level counterpart of Mus 491; additional requirements. Credit not granted for both Mus 491 and 591.

Problems, Research, Recitals, and Thesis

Mus

370 Topics - Study Abroad 3 Special topics in music taught in NCSA study abroad programs.

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.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

522 Graduate Recital 2 May be repeated for credit; cumulative maximum 4 hours. Private screening and public performance as required within each performance emphasis.

596 Topics for Music V 1-4 Varying subjects offered at graduate level.

597 Topics for Music V 1-4 Varying subjects offered at graduate level.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

Description of Courses

Theatre Arts and Drama

Theat (Drama)

145 [G] Contemporary World Theatre 3 Examination of contemporary theatrical works illustrating the clash which occurs when people of one culture live in another. EMAIL and WEB access required.

150 Film History 3 Survey of world cinema throughout century; emphasis on cultural and historical conditions that influenced development of specific genres and practitioners.

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 Intro to creative process of acting from experiential standpoint combined with exercises in interpersonal communication and critical thinking

264 Stage Makeup 2 (0-6) Basic techniques in the design and execution of makeup for the stage and television.

294 Stage Speech 2 (0-6) May be repeated for credit; cumulative maximum 4 hours. Techniques and exercises for development of the actor’s voice for the stage: voice production, articulation, and application.

296 Practical Theatre V I 0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 12 hours. Practical projects in theatre production, scenery, lights, sound, box office and publicity for nonmajors.

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] [M] 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] [M] 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.

401 Dramaturgy 3 Prereq by interview only. Strategies for collaborating with directors, designers, and playwrights; investigating theatrical contexts; adapting and/or updating scripts; communicating effectively with audiences.

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.

418 Topics—Study Abroad 3

419 Topics—Study Abroad 3 May be repeated for credit; cumulative maximum 6 hours.

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 (368) Visual Communication in Theatre, Film and Television 3 Analysis of the visual aspects of theatre, film and television applying research in perceptual psychology.

463 Seminar in Theatre Design 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq Theat 163. Sketching, mechanical drawing, watercolors, model building, and use of theatrical materials and techniques.

464 Creative Drama 3 Philosophy and techniques of informal drama; practical experience integrated into the curriculum; emphasis on application to educational setting. Cooperative course taught by WSU, open to UI students (ThA 381). Credit not granted for both Theat 464 and 564.

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.

468 [M] Theatre for Young Audiences 3 Prereq Theat 260. Study in evolution of dramatic literature and production demands of Theatre for Young Audiences (TYA). Credit not granted for both Theat 468 and 568.

470 Theory and Practice of Puppetry Arts 3 Prereq Theat 163. Puppetry arts with emphasis in drama, education, and therapy; practical and theoretical applications. Credit not granted for both Theat 470 and 570.

471 Applied Puppetry Arts 2 (1-3) Prereq c/l in Theat 470 or 570. Applications of puppetry arts theory to specific emphases: production, education and therapy. Credit not granted for both Theat 471 and 571.

472 Drama Therapy 3 Prereq current knowledge in psychology/counseling theory. Balanced theoretical and experiential approach toward understanding therapeutic applications of drama and theatre. Credit not granted for both Theat 472 and 572.

480 Playwriting 3 Prereq Engl 351. 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.

494 Acting: Rehearsal and Performance V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 6 hours. By interview only. Practical application of acting techniques during the production of plays.

496 Applied Theatre Studies 2 (0-4) 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.

498 Repertory Theatre 3 (0-9) May be repeated for credit; cumulative maximum 6 hours. Rehearsal, performance and related technical and management work in Summer Palace Theatre.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Research Methods and Dramaturgy 3 Prereq graduate standing. Theory, methods, and practice of graduate-level research as applied to both scholarship and theatre productions.

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.
504 Instructional Practicum 1 May be repeated for credit; cumulative maximum 4 hours. Instruction and guidance in teaching theatre arts and drama. S, F grading.

541 History of the Theatre I 3 Major developments of all aspects of theatre arts from pretitute times to 1850.

542 History of the Theatre II 3 Major developments of all aspects of theatre arts from 1850 to 1900.

561 Performance III: Directing 3 (0-6) Graduate-level counterpart of Theat 461; additional requirements. Credit not granted for both Theat 461 and 561.

564 Creative Drama 3 Prereq graduate standing. Graduate-level counterpart of Theat 464; additional requirements. Credit not granted for both Theat 464 and 564.

565 Seminar in Drama 3 May be repeated for credit; cumulative maximum 6 hours. Seminar in various periods, movements, and phases of drama.

568 Theatre for Children and Youth 3 Prereq graduate standing. Graduate-level counterpart of Theat 468; additional requirements. Credit not granted for both Theat 468 and 568.

563 Scene Design: Art and Practice 3 (0-6) Prereq graduate standing. The art of scene design, conceptualization and actualization; design analysis, research, and technical skills needed to execute renderings and models.

570 Theory and Practice of Puppetry Arts 3 Prereq Theat 163. Graduate-level counterpart of Theat 470; additional requirements. Credit not granted for both Theat 470 and 570.

571 Advanced Puppetry Arts 2 (1-3) Graduate-level counterpart of Theat 471; additional requirements. Credit not granted for both Theat 471 and 571.

572 Drama Therapy 3 Graduate-level counterpart of Theat 472; additional requirements. Credit not granted for both Theat 472 and 572.

590 Graduate Internship in Professional Theatre V 2-15 Prereq Theat 501; completion of one academic year’s master’s level course work in Theatre Arts and Drama at WSU. Internship position at upper levels of administration or production that requires expertise in specific area; theories/practical application. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

Department of Natural Resource Sciences


Natural resources are the basis for much of the economic activity in the state of Washington and in the world. Highly trained and motivated resource managers and natural resource scientists are needed to meet today’s and tomorrow’s demands for the multiple products and services supplied by the world’s natural resources. The objectives of the Department of Natural Resource Sciences are to prepare students for careers in forestry, range, wildlife, and wildland recreation. The management areas with a holistic perspective on resource management and an ability to conduct research in natural resource sciences that will increase the basic knowledge and productivity of the resources while maintaining or improving the aesthetic qualities.

Within the undergraduate program, students can choose to concentrate on either natural resource management or natural resource sciences. Graduates of the department are employed by all the major public and private land management and wildlife organizations in the United States. They work as foresters, range conservationists, wildlife biologists, park managers, information specialists, game managers, consultants, researchers, and in a variety of roles in developing countries.

At the graduate level, MS and PhD 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. Graduate-level students work with their academic committees in the development of academic programs and selection of research topics.

Student chapters of professional societies (Society of American Foresters, Society for Range Management, and The Wildlife Society) provide additional opportunities for students to interact 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 internships and cooperative education opportunities in their chosen field.

Facilities such as the department’s undergraduate project laboratory, graduate student and faculty computer laboratory, the ecophysics laboratory, bear research laboratory, large animal holding complex, and the greenhouses at the Steffen Center complex, the Hudson Biological Reserve at Smoov Hill, the Ownbey Herbarium, and the 12,000-acre Colocicum multiple-use research area provide students with access to the facilities and technologies needed to develop competence in their chosen professions.

Bachelor of Science in Natural Resource Management

Students pursuing the BS in Natural Resource Management must major in one (or more) of four areas: forestry, range, wildlife, and wildland recreation. All majors share a set of basic science requirements 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. In addition, each major has a specialized curriculum designed to meet the requirements of the appropriate professional society or a specific objective set by the department’s faculty. Forestry, range and wildland recreation also include options which enable students to further specialize their education.

FORESTRY MAJOR

The forestry major is designed to provide students with the educational basis for successfully pursuing a professional career in forestry. This program is fully accredited by the Society of American Foresters.

Each forestry student, in addition to completing the first year requirements, selects a professional option. The forestry options include business management, directed studies, forestry management, and wildlife habitat. The management option provides a student with an understanding of the underlying principles and techniques used in forest management. The forest business option (with business minor) provides a student with a basic understanding of business and forestry needed in the business aspects of forestry in the public and private sectors. The wildlife habitat option provides organizations with forestry professionals sensitive to the needs of wildlife and able to bridge the gap between the traditional forester and the wildlife biologist. The directed studies option provides a student with the opportunity to develop a professional program that will meet individual career goals. Students completing the forest management option meet the qualifications of the U.S. Office of Personnel Management for forester. With careful selection of courses students in the wildlife habitat option will meet the federal qualifications for wildlife biologist.

FIRST AND SECOND YEAR REQUIREMENTS

The first two years requirements are common to all forestry degree programs:

Freshman Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bio S 103 [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>
</tr>
<tr>
<td>Degree Program Course¹</td>
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<tr>
<td>Math 107</td>
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<td>NATRS 100</td>
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Second Semester

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Bio S 104 [B] or Bot 120 [B] (GER)</td>
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<tr>
<td>Degree Program Course²</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Geol 102 [P] (GER)</td>
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<td>NATRS 101</td>
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<tr>
<td>Stat 212 [N] (GER)</td>
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Sophomore Year

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Ag Ec 201 [S] or Econ 101 [S] (GER)³</td>
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<tr>
<td>Degree Program Course³</td>
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<tr>
<td>Intercultural [I,G,K]</td>
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<tr>
<td>NATRS 204</td>
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### BUSINESS MANAGEMENT DEGREE PROGRAM (141 HOURS) ✔ FYDA

#### Junior Year

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<tr>
<th>First Semester</th>
<th>Hours</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>Engl 402 [W] (GER)</td>
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</tr>
<tr>
<td>NATRS 280 or 480</td>
<td>3</td>
</tr>
<tr>
<td>NATRS 311</td>
<td>3</td>
</tr>
<tr>
<td>NATRS 351</td>
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</tr>
<tr>
<td>Required Business Elective</td>
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<tr>
<td>Complete Writing Portfolio</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NATRS 305</td>
<td>3</td>
</tr>
<tr>
<td>NATRS 410 or 420</td>
<td>3 or 2</td>
</tr>
<tr>
<td>NATRS 440</td>
<td>3</td>
</tr>
<tr>
<td>Required Business Elective</td>
<td>3</td>
</tr>
<tr>
<td>Restricted Math Elective</td>
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Year 3, Summer Session: NATRS 491 2

#### Senior Year

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<tr>
<th>First Semester</th>
<th>Hours</th>
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<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>NATRS 320</td>
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<td>NATRS 403</td>
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<td>NATRS 418</td>
<td>2</td>
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<tr>
<td>NATRS 430 or Forestry Elective</td>
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</table>

<table>
<thead>
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<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Forestry Elective</td>
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<tr>
<td>NATRS 414</td>
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<tr>
<td>NATRS 420 or 420</td>
<td>2 or 3</td>
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<td>NATRS 438 [M]</td>
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<td>NATRS 460</td>
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<td>Tier III Capstone (GER)</td>
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Year 3, Summer Session: NATRS 491 2

### FORESTRY MANAGEMENT DEGREE PROGRAM (138 HOURS) ✔ FYDA

#### Junior Year

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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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</tr>
<tr>
<td>Engl 402 [W] (GER)</td>
<td>3</td>
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<tr>
<td>NATRS 280 or 480</td>
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</tr>
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<td>NATRS 311</td>
<td>3</td>
</tr>
<tr>
<td>NATRS 351</td>
<td>3</td>
</tr>
<tr>
<td>Required Business Elective</td>
<td>3</td>
</tr>
<tr>
<td>Complete Writing Portfolio</td>
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</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>NATRS 305</td>
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<td>NATRS 312</td>
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<td>NATRS 331 or 348</td>
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<td>NATRS 410 or 420</td>
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<tr>
<td>NATRS 440</td>
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<td>Restricted Math Elective</td>
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Year 3, Summer Session: NATRS 491 2

### WILDLIFE HABITAT DEGREE PROGRAM (133 HOURS) ✔ FYDA

#### Junior Year

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<th>First Semester</th>
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<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
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<tr>
<td>NATRS 320</td>
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<tr>
<td>NATRS 357 or 430</td>
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<td>Restricted Math Elective</td>
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</tbody>
</table>

Year 3, Summer Session: NATRS 491 2

### RANGE MANAGEMENT MAJOR

The range management major contains an array of courses designed to prepare students for professional careers in one or several of the many facets of range management. This major is fully accredited by the Society for Range Management. Students who complete the wildlife habitat degree program may qualify to apply for wildlife biologist on the federal.
civil service register as well as range conservationist. The directed studies option is designed to give students an opportunity to minor in a subject area that will complement the range major.

**DIRECTED STUDIES AND WILDLIFE HABITAT DEGREE PROGRAMS (136 HOURS)**

**Freshman Year**

- **First Semester**
  - Hours
  - As 101
  - Bio S 103 [B] (GER)
  - Chem 101 [P] or 105 [P] (GER)
  - Engl 101 [W] (GER)
  - Math 107
  - NA TRS 100

- **Second Semester**
  - Hours
  - Bio S 104 [B] or Bot 120 [B] (GER)
  - Chem 102 [P] or 106 [P] (GER)
  - GenEd 110 [A] (GER)
  - NA TRS 101
  - NA TRS 312
  - Stat 212 [N] (GER)

**Sophomore Year**

- **First Semester**
  - Hours
  - GenEd 111 [A] (GER)
  - H D 205 [C] (GER)
  - NA TRS 204
  - NA TRS 301
  - SoilS 201

- **Second Semester**
  - Hours
  - Ag Ec 201 [S] or Econ 101 [S] (GER)
  - Bio S 372 or NA TRS 300
  - Intercultural [L,G,K] (GER)
  - NA TRS 302 [M]
  - NA TRS 374
  - NA TRS 414

**Junior Year**

- **First Semester**
  - Hours
  - Arts & Humanities [H,G] or Social Sciences [S,K] (GER)
  - Degree Program Course
  - NatS 375 or 430
  - SoilS 451
  - Complete Writing Portfolio

- **Second Semester**
  - Hours
  - Engl 402 [W] (GER)
  - NA TRS 304
  - NA TRS 452 or 453
  - Degree Program Course
  - Restricted Math Elective
  - Year 3, Summer Session: NA TRS 491

**Senior Year**

- **First Semester**
  - Hours
  - Arts & Humanities [H,G] (GER)
  - Degree Program Course
  - NA TRS 351 or 430
  - NA TRS 403
  - Tier III Capstone (GER)

- **Second Semester**
  - Hours
  - NA TRS 438 [M]

**WILDLIFE MANAGEMENT MAJOR (125 HOURS)**

The wildlife management major provides students with a basic background in the sciences plus additional interdisciplinary courses emphasizing the management aspects of wildlife science. Students completing the management major in wildlife are employed by federal and state organizations such as US Fish and Wildlife Service, US Forest Service, and Washington Department of Wildlife, as well as nonprofit and private organizations. The core requirements plus the electives in wildlife management allow majors to meet the U.S. Office for Personnel Management requirements for wildlife biologist, fish biologist, range conservationist, and soil scientist. Wildlife students can individualize and often enhance their professional development by minorin in other subjects such as communications, computer science, and other natural resource fields (forestry, range or wildland recreation). This course of study incorporates the suggested Ecology of the Planet area of coherence.

**Freshman Year**

- **First Semester**
  - Hours
  - Bio S 103 [B] (GER)
  - Chem 101 [P] or 105 [P] (GER)
  - Engl 101 [W] (GER)
  - Math 107
  - NA TRS 100

- **Second Semester**
  - Hours
  - Biol 102 [P] or 106 [P] (GER)
  - GenEd 110 [A] or 111 [A] (GER)
  - H D 205 [C] (GER)
  - NA TRS 101

**Sophomore Year**

- **First Semester**
  - Hours
  - GenEd 111 [A] (GER)
  - NA TRS 204
  - NA TRS 280
  - Stat 212 [N] (GER)

- **Second Semester**
  - Hours
  - Ag Ec 201 [S] or Econ 101 [S] (GER)
  - Bio S 372 or NA TRS 300
  - Intercultural [L,G,K] (GER)
  - NA TRS 302 [M]

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1 One of: Math 140, 171, 201, 202; Stat 401, 412, 422
2 One of: C E 174, Chem 240, Geol 102, Phys 101

**WILDLAND RECREATION MANAGEMENT MAJOR**

The wildland recreation major is designed to train wildland recreation managers who recognize, provide and perpetuate the recreational opportunities associated with natural environments. In addition to the required courses in the curriculum, students are expected to select or develop an option (16-18 hours) in the recreation field. This could be wilderness or dispersed area management, interpretation, state parks management, cultural resources management or it could be a minor in another discipline area such as business, environmental science, regional planning, forestry, wildlife or anthropology.

**FIRST, SECOND, AND THIRD YEAR REQUIREMENTS**

**Freshman Year**

- **First Semester**
  - Hours
  - Bio S 103 [B] (GER)
  - Chem 101 [P] or 105 [P] (GER)
  - Engl 101 [W] (GER)
  - Math 107

- **Second Semester**
  - Hours
  - GenEd 111 [A] (GER)
  - NA TRS 204
  - NA TRS 280
  - Stat 212 [N] (GER)

**Second Semester**

- **First Semester**
  - Hours
  - Bio S 104 [B] or Bot 120 [B] (GER)
  - Chem 102 [P] or 106 [P] (GER)
  - GenEd 110 [A] or 111 [A] (GER)
  - H D 205 [C] (GER)
  - NA TRS 101

- **Second Semester**
  - Hours
  - Biol 102 [P] or 106 [P] (GER)
  - GenEd 110 [A] or 111 [A] (GER)
  - H D 205 [C] (GER)
  - NA TRS 101

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1 One of: Math 140, 171, 201, 202; Stat 401, 412, 422
2 One of: C E 174, Chem 240, Geol 102, Phys 101

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Department of Natural Resource Sciences
**Department of Natural Resource Sciences**

**Sophomore Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Intercultural [I,G,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>H D 205 [C] (GER)</td>
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</tr>
<tr>
<td>NATRS 204</td>
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<td>NATRS 301</td>
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<td>NATRS 302 [M]</td>
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<td>NATRS 312</td>
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**Junior Year**

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<td>NATRS 311</td>
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<td>NATRS 371</td>
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<tr>
<td>NATRS 372 or 373&lt;sup&gt;3&lt;/sup&gt;</td>
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<td>Complete Writing Portfolio</td>
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<tr>
<td>NATRS 471 or 472&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>NATRS 474&lt;sup&gt;4&lt;/sup&gt;</td>
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<tr>
<td>Recreation Option Electives&lt;sup&gt;8&lt;/sup&gt;</td>
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<td>Soils 474</td>
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**Year 3, Summer Session:** NATRS 491 2

<sup>1</sup> One of: Math 140, 171, 201, 202; or Stat 401, 412, 422.

<sup>2</sup> For directed studies and management, take a recreational option elective; for interpretive, take an interpretative elective.

<sup>3</sup> Both required, alternating years.

<sup>4</sup> For directed studies and interpretive, take NATRS 460; for management, take Anth 435 or NATRS 460.

<sup>5</sup> For directed studies, 16 credit hours required; for interpretative, 9 credit hours required, including 3 in Communications; for management, 10 credit hours required as approved by department.

**WILDLAND RECREATION, DIRECTED STUDIES DEGREE PROGRAM (129 HOURS) **<sup>忸</sup> FYDA

### Senior Year

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<td>NATRS 403</td>
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<td>NATRS 471 or 472&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>NATRS 487</td>
<td>1-4</td>
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<tr>
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<sup>1</sup> Both courses required.

<sup>2</sup> 16 credit hours required

### WILDLAND RECREATION, INTERPRETATIVE DEGREE PROGRAM (128 HOURS)  <sup>忸</sup> FYDA

#### Senior Year

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<td>NATRS 403</td>
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<tr>
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<td>NA TRS 487</td>
<td>1-4</td>
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<sup>1</sup> Both courses required.

<sup>2</sup> 9 additional credit hours required, including 3 in Communications.

<sup>3</sup> Two courses from: Bot 332, Entom 343, Geol 310, Zool 423, 428.

### WILDLAND RECREATION, MANAGEMENT DEGREE PROGRAM (129 HOURS)  <sup>忸</sup> FYDA

#### Senior Year

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<td>NATRS 403</td>
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<td>Anth 435 or NATRS 460&lt;sup&gt;3&lt;/sup&gt;</td>
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<td>ES/RP 444</td>
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<td>NA TRS 471 or 472</td>
<td>3</td>
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<tr>
<td>NA TRS 487</td>
<td>1-4</td>
</tr>
<tr>
<td>Tier III Capstone (GER)</td>
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</tr>
</tbody>
</table>

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<sup>1</sup> As approved by department for management; 10 additional credits required.

<sup>2</sup> Alternate year course—offered odd years only.

<sup>3</sup> Both courses required.

### BACHELOR OF SCIENCE IN NATURAL RESOURCE SCIENCE

The BS in Natural Resource Science is offered for students most interested in the scientific basis of natural resource management and includes three majors: natural resource science, plant science, and wildlife resource science. Each major is composed of a core of basic science and GER courses, a common core of basic natural resource courses and a core of more advanced science courses in the area of the major. Students selecting these curricula frequently intend to pursue graduate study or enter professional schools such as veterinary medicine. Students in the natural resource science and plant resource science major in consultation with their advisor develop an individualized curriculum consisting of an additional 16-20 hours of approved course work in a defined option.

### NATURAL RESOURCE SCIENCE DEGREE PROGRAM (120 HOURS)  <sup>忸</sup> FYDA

#### Freshman Year

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<td>Chem 101 or 105 [F] (GER)</td>
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<td>Engl 101 [W] (GER)</td>
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<td>Math 107</td>
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<td>NATRS 100 or approved alternative</td>
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<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>H D 205 [C] or SpCom 102 [C] (GER)</td>
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<td>NATRS 101 or approved alternative</td>
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<tr>
<td>NATRS 312</td>
<td>2</td>
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<tr>
<td>Social Science Elective&lt;sup&gt;1&lt;/sup&gt;</td>
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#### Sophomore Year

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<td>GenEd 111 [A] (GER)</td>
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<td>NATRS 301</td>
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<tr>
<td>NRS Option Electives&lt;sup&gt;2&lt;/sup&gt;</td>
<td>6-8</td>
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<tr>
<td>Stat 212 [N] (GER) or approved alternative</td>
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<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Ag Ec 201 [S] or Econ 101 [S] (GER)</td>
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<tr>
<td>Bio S 372 or NATRS 300</td>
<td>4</td>
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<td>NRS Option Electives&lt;sup&gt;2&lt;/sup&gt;</td>
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#### Junior Year

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<tr>
<td>Basic/Applied Ecology Electives&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>Intercultural [I,G,K] (GER)</td>
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<td>NATRS 204</td>
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<td>NATRS 311</td>
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<tr>
<td>Physical Science Elective&lt;sup&gt;1&lt;/sup&gt;</td>
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<th>Second Semester</th>
<th>Hours</th>
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<td>3</td>
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<td>Engl 402 [W] (GER)</td>
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<td>NRS Option Electives&lt;sup&gt;2&lt;/sup&gt;</td>
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<tr>
<td>Restricted Math Elective&lt;sup&gt;1&lt;/sup&gt;</td>
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#### Senior Year

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<td>Soils 201</td>
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<sup>1</sup> Must be approved by department.

<sup>2</sup> Must be approved by department; to total 16-20 credits in a required option in one of the following areas: General Studies, Directed Studies, Natural Resource Policy, Natural Resource Sociology, Wetland/Aquatic Resources, or Landscape Ecology.

<sup>3</sup> One of: BC/BP 364, C E 174, Geol 102, or Phys 101

<sup>4</sup> One of: Math 140, 171, 202; or Stat 401, 412, 422
### PLANT RESOURCE SCIENCE MAJOR (120-130 HOURS)

**Freshman Year**

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<td>Chem 106 [P] (GER)</td>
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<td>GenEd 111 [A] (GER)</td>
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<td>NA TRS 301</td>
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**Sophomore Year**

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<td>Complete Writing Portfolio</td>
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<td>Second</td>
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<td>Intercultural [I,G,K] (GER)</td>
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<td>Engl 402 [W] (GER)</td>
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**Junior Year**

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<td>SoilS 201</td>
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<td>NA TRS 488 [M]</td>
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<tr>
<td>Open Electives&lt;sup&gt;3&lt;/sup&gt;</td>
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**Senior Year**

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<td>NA TRS 488 [M]</td>
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<sup>1</sup>Must be approved by the department; at least three plant science elective courses (totaling a minimum of 9 credit hours) are required, with at least one course in each of the following areas: plant anatomy/morphology, plant physiology, and plant ecology.  
<sup>2</sup>Must be approved by department to total 16-20 credits in a required option in one of the following areas: Directed Studies, Applied Physiology, Applied Ecology or (at Vancouver campus only) Environmental Horticulture.  
<sup>3</sup>One of: BC/BP 364, C E 174, Geol 102, or Phys 101.  
<sup>4</sup>One of: Math 140, 171, 202, Stat 401, 412, or 422  
<sup>5</sup>Two of: Entom 343, Zool 412, 423, 428, or 430 required.

### WILDLIFE RESOURCE SCIENCE MAJOR (120-121 HOURS)

**Freshman Year**

<table>
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<th>Courses</th>
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<td>Chem 105 [P] (GER)</td>
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<td>Engl 101 [W] (GER)</td>
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<td>Math 107</td>
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<td>Bio S 104 [B] or Bot 120 [B] (GER)</td>
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<td>NA TRS 312</td>
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</table>

**Sophomore Year**

<table>
<thead>
<tr>
<th>Semester</th>
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<th>Courses</th>
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</thead>
<tbody>
<tr>
<td>First</td>
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<tr>
<td>Chem 240</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>NA TRS 204</td>
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<tr>
<td>NA TRS 280</td>
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<td>NA TRS 301</td>
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<tr>
<td>Second</td>
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<tr>
<td>Ag Ec 201 [S] or Econ 101 [S] (GER)</td>
<td>3</td>
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<tr>
<td>Bio S 372 or NA TRS 300</td>
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<tr>
<td>GenCB 301</td>
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<tr>
<td>NA TRS 302 [M]</td>
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<tr>
<td>NA TRS 312</td>
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**Junior Year**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
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<tr>
<td>NA TRS 450 [M]</td>
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<tr>
<td>NA TRS 451</td>
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<tr>
<td>Physical Science Elective&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>SoilS 201</td>
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<tr>
<td>Stat 212 [N] (GER) or approved alternative</td>
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<tr>
<td>Complete Writing Portfolio</td>
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<td>Second</td>
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<tr>
<td>Engl 402 [W] (GER)</td>
<td>3</td>
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<tr>
<td>Intercultural [I,G,K] (GER)</td>
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<td>NA TRS 431</td>
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<tr>
<td>A S 440 or Zool 353</td>
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<tr>
<td>Restricted Math Elective&lt;sup&gt;4&lt;/sup&gt;</td>
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**Senior Year**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
<th>Courses</th>
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<tbody>
<tr>
<td>First</td>
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<td></td>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
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<tr>
<td>NA TRS 435</td>
<td>4</td>
<td></td>
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<tr>
<td>Wildlife Electives&lt;sup&gt;1&lt;/sup&gt;</td>
<td>3 or 4</td>
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<tr>
<td>Open Electives</td>
<td>4</td>
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<tr>
<td>Second</td>
<td></td>
<td></td>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
<td></td>
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<tr>
<td>NA TRS 436</td>
<td>4</td>
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<tr>
<td>Tier III Capstone (GER)</td>
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<tr>
<td>Wildlife Electives&lt;sup&gt;1&lt;/sup&gt;</td>
<td>3 or 4</td>
<td></td>
</tr>
<tr>
<td>Open Elective</td>
<td>1</td>
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</tbody>
</table>

<sup>1</sup>One of: BC/BP 364, C E 174, Geol 102, or Phys 101.  
<sup>2</sup>One of: Math 140, 171, 202, Stat 401, 412, or 422  
<sup>3</sup>Two of: Entom 343, Zool 412, 423, 428, or 430 required.

### Transfer Students

Students who plan to work toward an advanced degree should seek advice from their advisor in the selection of their courses. This will ensure that the courses selected will strengthen their education in areas needed to successfully complete an advanced degree program. Students from related fields who wish to obtain a master’s degree in either natural resources or natural resource sciences or the PhD in Environmental and Natural Sciences are encouraged to apply. They may be required to complete selected undergraduate courses in addition to the courses needed for their graduate programs. To be admitted to the department’s graduate program a student must (1) meet the Graduate School’s minimum admission requirements, (2) complete the department’s supplemental application form, (3) have three letters of reference and GRE scores submitted to the department and, (4) have at least one member of the department’s faculty willing to be the student’s major advisor.

### MINORS IN FORESTRY, RANGE, WILDLAND RECREATION, WILDLIFE AND NATURAL RESOURCES

Four minors (forestry, range, wildland recreation and wildlife) are available both to students majoring in other natural resource fields and to students in other degree programs at WSU. A fifth, broader minor in natural resources is designed to serve the needs of students who are not matriculated in a natural resource degree program/major at WSU (and can be taken only by non-natural resource science majors). Requirements for these minors are listed below:

- **Forestry:** minimum of 16 credit hours. Required courses: NA TRS 204, 301, 304, 305. Restricted electives: at least 5 credit hours selected from NA TRS 331, 348, 406, 420, 430, 460.
- **Range:** minimum of 18 credit hours. Required courses: NA TRS 301, 302, 351, SoilS 201. Restricted electives: at least 6 credit hours selected from NA TRS 452, 453, 457, 460, 480.
- **Wildland Recreation:** minimum of 18 credit hours. Required courses: NA TRS 371, 373, 403, 471, 472. Restricted electives: at least 3 credit hours selected from NA TRS 312, 438, 460, 474, 487.
- **Wildlife:** minimum of 19 credit hours. Required courses: NA TRS 280, 435. Restricted electives: at least 12 credit hours from NA TRS 340, 406, 429, 431, 436, 450, 460, 480; no more than one from Zool 423, 428, 430.

### Natural Resources

Minimum of 16 credit hours of courses approved by department. For non-NA TRS majors only. Required courses: at least 9 credit hours of NA TRS courses, as least 9 credit hours of courses numbered 300 or higher, and at least one course in each of the following areas (three courses total); indi-
vidual courses may be used to satisfy only one area: 1) Basic Principles of Natural Resource Sciences/ Management: Recommended Electives: NATRS 100, 101, 303; others upon departmental approval; 2) Socioeconomic Aspects of Natural Resource Sciences/ Management: Recommended Electives: NATRS 303, 311, 312, 403, 419, 438; others upon departmen
tal approval; 3) Ecological Aspects of Natural Re
source Sciences/Management: Recommended Elec
trives: NATRS 280, 301, 302, 303, 351, 371, 403, 419,
450, 460; others upon departmental approval.

Description of Courses

Natural Resource Sciences

NATRS
100 Introduction to Natural Resource Management I 3 Nature and significance of natural re
sources; types of renewable natural resource systems; goals and principles of natural re
source management.
101 Introduction to Natural Resource Management II 1 Professional fields of natural re
source management. Field trip required.
204 Introduction to Measurements and Comput
er Methods in Natural Resources 2 (1-3) Prereq Math 107 or junior standing. Introduction to basic
concepts, field techniques and the use of spread
sheets in natural resources. Field trips required.
275 Leisure in Society 3 Same as RLS 275.
280 Introductory Wildlife Management 3 (2-3) Prereq Bio S 104 or Bot 120. An introductory course in the principles of wildlife manage
ment. Field trip required.
300 Natural Resource Ecology 4 (3-3) Prereq Bio S 103; Bio S 104 or Bot 120. Ecology as applied to management of natural resource ecosystems; biological diversity, conserva
tion biology, global climate change in natural resource ecology. Field trips required.
301 Forest and Range Plant Resources I 3 (2-3) Prereq Bio S 104 or Bot 120. Identification and ecology of important forest and range plants with emphasis on woody plants; attrib
utes significant to vegetation management. Field trips required.
302 [M] Forest and Range Plant Resources II 3 (2-3) Prereq NATRS 301. Identification and ecology of important forest and range plants with emphasis on herbaceous plants; attributes significant to vegetation management. Field trips required.
303 [B] Conservation of Renewable Resources 3 (2-3) Prereq completion of Tier I science re
quirement. A series of case studies of interna
tional natural resource conservation issues that emphasizes ecological concepts and human decision making.
304 Forest and Range Biology 3 Prereq Bio S 372 or NATRS 300; NATRS 302 or c/lf. Structure and functions of forest and range plants; influ
ence of biotic and environmental factors on plant and stand growth.
305 Silviculture 3 Prereq NATRS 204, 300, 302. Stand dynamics, natural regeneration meth
ods, intermediate stand treatment, relations
hips of natural resource management to silvi
cultural practice. Field trips required.
311 Natural Resource Economics 3 Same as Ag Ec 311.
312 Natural Resources and Society 2 Prereq NATRS 100; junior standing. Social views of natural resources, processes by which these views are developed and expressed, social conflict over natural resources.
313 Forest Measurements 2 (1-3) Prereq NATRS 204. Theory and application of forest measure
ments. Field trips required. Cooperative course taught jointly by WSU and UI (ForPr 374).
320 Timber Harvesting 3 Prereq NATRS 204. Current practices and problems; planning and coordinating timber harvesting with forest management. Field trips required. Cooperative course taught by UI (ForPr 430), open to WSU students.
321 Introduction to Wood Technology 3 Prereq Bio S 103. Anatomy of woody plants, identifying characteristics and properties of woods; relation of wood properties to processing and use. Field trips required. Cooperative course taught by UI (ForPr 277), open to WSU students.
331 Forest Pathology 2 (0-6) Same as PI P 331.
348 Forest Entomology 2 (1-3) Principles and concepts of forest entomology; integration and application of basic knowledge; processes in dealing with insect problems.
351 Principles of Range Management 3 Prereq NATRS 301. Basic concepts in range manage
ment; range history; physiology of range pro
ductivity and utilization; grazing management; range improvements. Field trip required.
353 Range Plant Identification Laboratory 1 (0-3) May be repeated for credit; cumulative maximum 6 hours. Identification, forage value, and habitats of North American range plants. S, F grading.
357 Range Measurements 2 (1-3) Prereq NATRS 204. Theory and application of rangeland ecosystem measurements. Field trip required.
371 Wildland Recreation 3 Prereq junior standing. Historic development; benefits; federal, state, and local involvement; current problems and trends in the field of wildland recreation.
372 Wildland Recreation Field Laboratory 1 (0-3) Prereq NATRS 371 or c/lf. Field observation of recreation practices. Field trips required.
373 Environmental Interpretive Methods 3 Prereq NATRS 371. Introduction to environ
mental interpretation; communication psy
chology and media applied to noncaptive aud
iences in leisure and natural resource settings. Cooperative course taught by UI (RRT 387), open to WSU students.
374 Remote Sensing and Airphoto Interpretation 3 (2-3) Same as SoilS 374.
403 Natural Resource Planning 3 (2-3) Prereq Bot 372, NATRS 204, 300, 301, or by interview only, junior standing. Rec NATRS 438. Natural re
source management planning processes to in
clude public and private lands: inventory, public involvement, implementation, monitoring, as
sessing resource values. Credit not granted for both NATRS 403 and 503. Field trip required.
407 Forest Populations 1 Prereq enrollment in CEFES Program. Concepts of genetics, popu
lation dynamics and pest management applied to forest management.
410 Forest Finance and Valuation 3 Prereq Ag Ec 201 or Econ 101; Math 107; NATRS 204. Economic and finance principles applied to forest management and appraisals. Credit not granted for both NATRS 410 and 510.
413 Forest Nursery Management 2 Forest nursery design; seed processing and quality; nursery equipment and cultural practices; seedling quality. Field trips required. Credit not granted for both NATRS 413 and 513. Cooper
ative course taught by UI (For 413/513), open to WSU students.
414 [M] Ecosystem Surveys and Inventories 3 (2-3) Prereq Dec S 215, Stat 212 or 412; NATRS 313 or 357. The application of sampling theory in natural resource inventories and surveys.
416 Principles of Fisheries Management 4 (3-3) Application of principles toward managing recre
ational and commercial aquatic resources. Field trips required. Cooperative course taught jointly by WSU and UI (Fish 418).
417 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.
418 Forest Growth and Yield 2 Prereq Dec S 215, Stat 212, or 412. Factors influencing forest yields, traditional prediction methods; develop
ment and application of growth and yield simulators. Credit not granted for both NATRS 418 and 518.
419 Topics in Natural Resource Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Topical issues in natural resource sciences.
420 Wood, Wood Products and Marketing 2 Wood science and its role in the manufacture and marketing of forest products. Field trip required. Credit not granted for both NATRS 420 and 520.
421 Fish Diseases 3 (2-3) Epidemiology, diagnostics, prevention, and treatment of infectious and noninfectious diseases of free living and confined finfish. Cooperative course taught jointly by WSU and UI (Fish 420).
422 Tropical Dendrology and Ecology 3 (2-3) Distribution, physiology and climate of world tropical and subtropical vegetation types. Credit not granted for both NATRS 422 and 522. Cooperative course taught by UI (For 420), open to WSU students.
426 Population Analysis 1 Analysis, diagnosis, interpretation, and forecasting of population change. Credit not granted for both NATRS 426 and 526.
427 Forest Gene Resource Management 3 Prereq course in silviculture. Application of genetic principles to management of forest trees: the origins and function of genetic diversity, heri
tability and genetic change, genetic implica
tions of silvicultural practices and ecosystem management, forest tree genetic conservation. Field trips required. Credit not granted for both NATRS 427 and 527. Cooperative course taught by UI (For/Genet 428/528), open to WSU students.
429 Population Theory 1 Prereq general ecology. Development of the theory of population dyn
amics from Mathus to the present. Credit not granted for both NATRS 429 and 529.
430 Introduction to Wildland Fire 3 Prereq NATRS 300. Physical nature and behavior of wildland fire; the fire environment; fire ecol
ogy; practice of wildland fire management. Field trip required.
431 Wildlife Nutrition 3 (2-3) Nutritional require
ments and interactions of wildlife populations. Credit not granted for both NATRS 431 and 531.
432 Low-volume Forest Roads 3 Prereq NA TRS 320. Road classification; design of forest roads; construction techniques; cost, environmental considerations, design project. Three days of field trips. Cooperative course taught by UI (ForPr 432), open to WSU students.

433 Forest Tractor System Analysis 3 Prereq NA TRS 320. Planning, layout, and cost analysis of forest tractor systems, production estimating, machine capabilities, and options; layout project. Three days of field trips. Cooperative course taught by UI (ForPr 433), open to WSU students.

434 Cable Systems Analysis 3 Prereq NA TRS 320. Layout, planning, and design for cable logging systems; analysis of forces involved in cable logging; crew and terrain requirements; layout and design project; cost and equipment analysis. Three one-day field trips. Cooperative course taught by UI (ForPr 434), open to WSU students.


437 Wildland Fire Management Laboratory 1 (0-3) Prereq NA TRS 430. Wildland fuel combustion; fire behavior; fuel evaluation; fire effects; application to fire management. Field trips required. Credit not granted for both 437 and 537.

438 [M] Natural Resource Policy and Administration 3 (2-2) Prereq Engl 402, NA TRS 312, junior standing. Development, content, and implementation of federal public land and natural resource policies emphasizing forest, range, wildlife, and wildland recreation. Credit not granted for both NA TRS 438 and 538.

439 Production and Cost Control in Forest Industry 3 Prereq NA TRS 420. Introduction to production planning and cost control for timber harvesting and forest products processing operations; development and application of machine rates and system production rates; break-even analysis; machine replacement; cash flow in investment decisions; use of microcomputers in analysis. Cooperative course taught by UI (ForPr 439), open to WSU students.

440 Integrated Forest Management Models 3 (2-3) Prereq NA TRS 313; 410 or 510. Mathematical programming techniques for decisions in forest planning; coordinate site projects, area analysis, strategic forest plans, and regional forest resource policies. Credit not granted for both NA TRS 440 and 540. Cooperative course taught by UI (For 477), open to WSU students.

445 Nonprofit Management 2 Same as Zool 445.

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 NA TRS 450 and 550. Cooperative course taught jointly by WSU and UI (WLF 440).

452 Range Development and Improvements 3 (2-3) Prereq NA TRS 351. Developing and improving rangeland forage resources; ecological considerations, plant control, seeding, fertilization, fire, facilitating animal use. Field trips required. Credit not granted for both NA TRS 452 and 552.

453 Range Livestock Management 3 Rec NA TRS 351. Range livestock management, nutrition and behavior; plant responses to grazing; grazing systems; stocking variables. Field trip required. Credit not granted for both NA TRS 453 and 553.

459 Rangeland Ecology 3 Prereq NA TRS 302. Application of ecological principles in rangeland management; stressing response and behavior of range ecosystems to various kinds and intensities of disturbance and management practice. Field trips required. Cooperative course taught by UI (Range 459), open to WSU students.

460 Watershed Management 3 Prereq NA TRS 204, completion of department requirement in Bio S, Chem, and Ph S, Math and Stat; or by interview only. Principles and practices of management of forest and rangelands for protection, maintenance and improvement of water resource values. Field trip required. Credit not granted for both NA TRS 460 and 560.

461 Management of Freshwater Ecosystems 3 (2-3) Prereq Bio S 102 or Bot 120; Chem 101. Introduction to the science and management of aquatic ecosystems, emphasizing lakes.

471 Wildland Recreation Management 3 (2-3) Prereq NA TRS 371. Planning and management techniques applied to wildland recreation problems and situations. Field trips required. Credit not granted for both NA TRS 471 and 571.


473 Interpretive Methods Lab 3 Prereq NA TRS 373. Development and application of interpretive materials and techniques; concentration on equipment and methods commonly used by natural resource agencies for communicating management programs and interpreting natural environments to visitors. Field trip required. Cooperative course taught by UI (RRT 483), open to WSU students.


475 Management of Recreation Sites and Leisure Settings 2 Introduction to theory, processes, and techniques for managing natural resource-based recreation and tourism sites; emphasis on site impacts and their management, visitor/customer management, liability and risk management, and the proper care of landscape trees and other amenity resources. Field trips required. Cooperative course taught by UI (RRT 484), open to WSU students.

476 Field Environmental Education 3 Concept and techniques of environmental education with emphasis on camp use of parks, and similar recreation and tourism informal settings. Field trips required. Cooperative course taught by UI (RRT 487), open to WSU students.

477 Public Involvement in Natural Resource Management 3 Theoretical and applied concepts of public involvement in both public and private sectors of natural resource management; historical and legal mandates, government agency responsibilities, applied methods and techniques, case studies, and practical experience. Field trips required. Cooperative course taught by UI (RRT 486), open to WSU students.

479 Natural Resource Management Internship V 2-12 An elective opportunity for select students to supplement their academic training with practical field experience.

480 Big Game Range Management 3 Prereq NA TRS 301. Big game habitat management on rangelands and forested ranges; big game habitat rehabilitation. Field trip required. Credit not granted for both NA TRS 480 and 580.

485 Aquatic Ecosystem Assessment Methods for Environmental and Natural Resource Sciences 3 (1-6) Prereq NA TRS 460, Zoool 310, 411. Integrating structural and geomorphic analyses, biologic indicators, water quality, and community-level indices into assessments of ecosystem health and biotic integrity.


488 [M] Senior Thesis in Natural Resources V 3-6 May be repeated for credit; cumulative maximum 6 hours. Prereq senior in NATRS.

490 Wildlife Science Internship V 2-6 May be repeated for credit; cumulative maximum 12 hours. A cooperative internship with wildlife agencies. S, F grading.

491 Integrated Field Studies 2 (1-3) Prereq NA TRS 204, 302, 374, junior standing. Two-week field course at the end of spring semester to emphasize interdisciplinary studies of natural resource management.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

503 Natural Resource Planning 3 (2-3) Graduate-level counterpart of NA TRS 403; additional requirements. Credit not granted for both NA TRS 403 and 503.

504 Agroforestry Systems 2 Prereq NA TRS 304. Agroforestry systems used in the world including their current use in developing countries. Cooperative course taught by UI (Range 558), open to WSU students.

510 Forest Finance and Valuation 3 Graduate-level counterpart of NA TRS 410; additional requirements. Credit not granted for both NA TRS 410 and 510.

511 Integrated Forest Resource Economics 2 Microeconomic theory of forest resource production and supply; valuing non-commodity and intangible forest resources; optimizing jointly produced resources; hierarchical decision analysis, case studies and policy evaluation. Cooperative course taught by UI (For 581), open to WSU students.

513 Forest Nursery Management 2 Graduate-level counterpart of NA TRS 413; additional requirements. Credit not granted for both NA TRS 413 and 513. Cooperative course taught by UI (For 513), open to WSU students.

517 Advanced Forest Mensuration 1 Prereq enrollment in CE/FES program. Evaluation of forest growth and yield in forest ecosystem management.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>518</td>
<td>Forest Growth and Yield</td>
<td>2 Graduate-level counterpart of NATRS 418; additional requirements. Credit not granted for both NATRS 418 and 518.</td>
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<tr>
<td>519</td>
<td>Advanced Topics V</td>
<td>1-3 May be repeated for credit; cumulative maximum 6 hours.</td>
</tr>
<tr>
<td>520</td>
<td>Wood, Wood Products and Marketing</td>
<td>2 Graduate-level counterpart of NATRS 420; additional requirements. Credit not granted for both NATRS 420 and 520.</td>
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<tr>
<td>521</td>
<td>Human Dimensions of Wildlife Management</td>
<td>2 Prereq NATRS 435. An exploration of the elements involved in the management of wildlife for non-consumptive activities, the impacts of such activities on wildlife, the role of national parks and protected areas in providing wildlife viewing opportunities, and public attitudes toward wildlife species. Cooperative course taught by UI (WLF 520), open to WSU students.</td>
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<tr>
<td>522</td>
<td>Tropical Dendrology and Ecology</td>
<td>3 (2-3) Graduate-level counterpart of NATRS 422; additional requirements. Credit not granted for both NATRS 422 and 522. Cooperative course taught by UI (For 520), open to WSU students.</td>
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<tr>
<td>524</td>
<td>Plant Autecology</td>
<td>3 Prereq course in ecology or plant physiology. Adaptations of individual species in rangeland and forest communities; emphasizing morphological and physiological mechanisms that influence plant establishment, below- and above-ground productivity, plant competition, and grazing sensitivity. Field trips required. Cooperative course taught by UI (Range 560), open to WSU students.</td>
</tr>
<tr>
<td>525</td>
<td>Experimental Plant Ecology</td>
<td>3 (1-6) Experimental Plant Ecology with orientation toward environmental and physiological measurement in field and laboratory research. Cooperative course taught by WSU, open to UI students (Bot 525).</td>
</tr>
<tr>
<td>526</td>
<td>Population Analysis</td>
<td>1 Graduate-level counterpart of NATRS 426; additional requirements. Credit not granted for both NATRS 426 and 526.</td>
</tr>
<tr>
<td>527</td>
<td>Forest Gene Resource Management</td>
<td>3 Graduate-level counterpart of NATRS 427; additional requirements. Credit not granted for both NATRS 427 and 527. Cooperative course taught by UI (For 528), open to WSU students.</td>
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<tr>
<td>529</td>
<td>Population Theory</td>
<td>1 Graduate-level counterpart of NATRS 429; additional requirements. Credit not granted for both NATRS 429 and 529.</td>
</tr>
<tr>
<td>531</td>
<td>Wildlife Nutrition</td>
<td>3 (2-3) Graduate-level counterpart of NATRS 431; additional requirements. Credit not granted for both NATRS 431 and 531.</td>
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<tr>
<td>535</td>
<td>Wildlife Ecology</td>
<td>4 (3-3) Graduate-level counterpart of NATRS 435; additional requirements. Credit not granted for both NATRS 435 and 535.</td>
</tr>
<tr>
<td>536</td>
<td>Advanced Wildlife Management</td>
<td>3 (3-3) Graduate-level counterpart of NATRS 436; additional requirements. Credit not granted for both NATRS 436 and 536.</td>
</tr>
<tr>
<td>537</td>
<td>Wildland Fire Management Laboratory</td>
<td>1 (0-3) Graduate-level counterpart of NATRS 437; additional requirements. Credit not granted for both NATRS 437 and 537.</td>
</tr>
<tr>
<td>538</td>
<td>Natural Resource Policy and Administration</td>
<td>3 (2-2) Graduate-level counterpart of NATRS 438; additional requirements. Credit not granted for both NATRS 438 and 538.</td>
</tr>
<tr>
<td>540</td>
<td>Integrated Forest Management Models</td>
<td>3 (2-3) Graduate-level counterpart of NATRS 440; additional requirements. Credit not granted for both NATRS 440 and 540.</td>
</tr>
<tr>
<td>545</td>
<td>Advanced Ecosystem and Landscape Management</td>
<td>2 Prereq enrollment in NRI or by interview only. Ecosystems and landscape management principles, assessments, monitoring, design, and practice, incorporating biological and socioeconomic perspectives.</td>
</tr>
<tr>
<td>546</td>
<td>Upland Game Ecology</td>
<td>2 Prereq NATRS 435. Ecosystem and management of wildlife species using forest and rangeland habitats; current management problems and procedures. Cooperative course taught by UI (WLF 546), open to WSU students.</td>
</tr>
<tr>
<td>547</td>
<td>Predator Ecology and Management</td>
<td>3 Ecology of predators and predator-prey systems with emphasis on mammalian species, discussion of predation theory and contributions of field studies to understanding the role of predation in natural and altered communities; human-predator conflicts and resolution. One three-day field trip required. Cooperative course taught by UI (WLF 547), open to WSU students.</td>
</tr>
<tr>
<td>550</td>
<td>Conservation Biology</td>
<td>3 Graduate-level counterpart of NATRS 450; additional requirements. Credit not granted for both NATRS 450 and 550.</td>
</tr>
<tr>
<td>551</td>
<td>Range Ecology Concepts</td>
<td>3 Prereq two ecology courses. Ecological concepts of dynamics and distribution of plant communities; secondary succession processes, soil-vegetation relationships and development of vegetation classification schemes. Cooperative course taught by UI (Range 551), open to WSU students.</td>
</tr>
<tr>
<td>552</td>
<td>Range Development and Improvements</td>
<td>3 (2-3) Graduate-level counterpart of NATRS 452; additional requirements. Credit not granted for both NATRS 452 and 552.</td>
</tr>
<tr>
<td>553</td>
<td>Range Livestock Management</td>
<td>3 Graduate-level counterpart of NATRS 453; additional requirements. Credit not granted for both NATRS 453 and 553.</td>
</tr>
<tr>
<td>554</td>
<td>Restoration Ecology</td>
<td>2 Prereq NATRS 302. Restoration of disturbed or damaged ecosystems; fundamental principles from stress physiology and community ecology; review of case studies. Cooperative course taught by UI (Range 552), open to WSU students.</td>
</tr>
<tr>
<td>555</td>
<td>International Resource Management Seminar</td>
<td>3 May be repeated for credit; cumulative maximum 9 hours. An issues-centered analysis of natural resource management in global context. Cooperative course taught by WSU, open to UI students (Range 554).</td>
</tr>
<tr>
<td>559</td>
<td>Advanced Topics in Range Management V</td>
<td>1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq NATRS 452. Review of current literature and its application in range management.</td>
</tr>
<tr>
<td>560</td>
<td>Watershed Management</td>
<td>3 Graduate-level counterpart of NATRS 460; additional requirements. Credit not granted for both NATRS 460 and 560.</td>
</tr>
<tr>
<td>571</td>
<td>Wildland Recreational Management</td>
<td>2 (2-3) Graduate-level counterpart of NATRS 471; additional requirements. Credit not granted for both NATRS 471 and 571.</td>
</tr>
<tr>
<td>572</td>
<td>Dispersed Recreation Management</td>
<td>2 (2-3) Graduate-level counterpart of NATRS 472; additional requirements. Credit not granted for both NATRS 472 and 572.</td>
</tr>
<tr>
<td>574</td>
<td>Managing Public Use of Wildland Recreation</td>
<td>3 (1-4) Same as SoilS 574. Credit not granted for both SoilS 574 and 574.</td>
</tr>
<tr>
<td>575</td>
<td>Advanced Remote Sensing</td>
<td>3 Graduate-level counterpart of NATRS 480; additional requirements. Credit not granted for both NATRS 480 and 570.</td>
</tr>
<tr>
<td>578</td>
<td>Advanced Topics in Wildlife</td>
<td>V 1-3 May be repeated for credit; cumulative maximum 10 hours. Biology and management of wildlife species. Cooperative course taught jointly by WSU and UI (WLF, For, FWR, Range, and RRTT 503).</td>
</tr>
<tr>
<td>593</td>
<td>Special Topics Seminar</td>
<td>1 May be repeated for credit. Prereq 20 hours NATRS. Literature and problems.</td>
</tr>
<tr>
<td>594</td>
<td>Environmental and Natural Resources Issues and Ethics</td>
<td>3 Prereq senior standing. May be repeated for credit; cumulative maximum 7 hours. Ethical systems applied to natural resources; issues of professionalism and ethics in natural resource management.</td>
</tr>
<tr>
<td>595</td>
<td>Seminar in Natural Resource Sciences</td>
<td>1 May be repeated for credit. Literature review; preparation and presentation of reports in natural resource sciences.</td>
</tr>
<tr>
<td>600</td>
<td>Special Projects or Independent Study Variable credit</td>
<td>F grading.</td>
</tr>
<tr>
<td>700</td>
<td>Master's Research, Thesis, and/or Examination Variable credit</td>
<td>S, F grading.</td>
</tr>
<tr>
<td>702</td>
<td>Master's Special Problems, Directed Study and/or Examination Variable credit</td>
<td>S, F grading.</td>
</tr>
<tr>
<td>800</td>
<td>Doctoral Research, Dissertation, and/or Examination Variable credit</td>
<td>S, F grading.</td>
</tr>
</tbody>
</table>

**Naval Science Program**

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 $150 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 pro-
gram requires one training cruise during the summer following the junior year. It is an afloat 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, books, and a $150 a month stipend. 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 afloat cruise 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 (ICNE) 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.

Description of Courses

Naval Science

NS

100 Drill Lab No credit. Required of all Navy-Marine Corps Officer Education Program students. One hour lab per week. S, F grading. Cooperative course taught by UI (NS 100), open to WSU students.

101 Introduction to Naval Science 2 Roles of major elements of naval service; design and structure of ships. Cooperative course taught by UI (NS 101), open to WSU students.

102 Ships Systems I 3 Introduction to damage control and propulsion systems of naval ships; nuclear and conventional power. Cooperative course taught by UI (NS 102), open to WSU students.

201 Ships Systems II 3 Naval weapons: ballistics, control, propulsion, components, systems analysis. Cooperative course taught by UI (NS 201), open to WSU students.

202 Seapower and Maritime Affairs 2 U.S. Navy and merchant marine seapower, development, and policy. Cooperative course taught by UI (NS 202), open to WSU students.

299 Directed Study 1 or 2 May be repeated for credit; cumulative maximum 12 hours. By interview only. Cooperative course taught by UI (NS 299), open to WSU students.

301 Navigation 3 Theory, principles, and procedures of terrestrial and celestial navigation. Cooperative course taught by UI (NS 301), open to WSU students.

302 Naval Operations 3 Prereq N S 301. Naval operations and tactics, relative motion, rules of the naval road. Cooperative course taught by UI (NS 302), open to WSU students.

311 Evolution of Warfare 3 Rec N S 101, 202. Evolution of war through tactics; strategy from Sun Tzu to J.F.C. Fuller. Cooperative course taught by UI (NS 311), open to WSU students.

401 Naval Organization and Management 2 Theories of management and management resources, motivational theories and leadership. Cooperative course taught by UI (NS 401), open to WSU students.

402 Naval Leadership 2 Rec N S 401. Principles and styles of leadership, personal attributes, and UCMJ. Cooperative course taught by UI (NS 402), open to WSU students.

412 Amphibious Operations 3 Rec N S 311. Amphibious doctrine from Gallipoli to Mayquesz. Cooperative course taught by UI (NS 412), open to WSU students.

419 Team Building 2 By interview only. Practical application of leadership and management techniques through athletics. Cooperative course taught by UI (NS 419), open to WSU students.

420 Basic Leadership 1 By interview only. Practical application of leadership and management techniques through the branch and division officer level. Cooperative course taught by UI (NS 420), open to WSU students.

421 Intermediate Leadership 2 By interview only. Practical application of leadership and management techniques through the department head level. Cooperative course taught by UI (NS 421), open to WSU students.

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 (NS 422), open to WSU students.

499 Directed Study V 1-4 May be repeated for credit. By interview only. S, F grading. Cooperative course taught by UI (NS 499), open to WSU students.

Minor in Naval Science

NS 101, 102, 201, 202; four to six courses from the following: NS 301, 302, 311, 401, 402, 412.

Program in Neuroscience

Professor and Chair and Director of MS/PhD in Neuroscience: J. M. Krueger; Professor and Director of BS in Neuroscience: S. R. White, J. W. Wright; Associate Professors, K. Briski-Sylvestor, G. A. Burns, L. Churchill, J. Fang, H. L. Granzier, S. M. Simasko, R. E. See, C. M. Ulibarri; Assistant Professors, R. Craft, J. E. Ellington, D. A. Jackson, B. A. Sorg, D. L. Stenkamp.

Neuroscience, the study of the nervous system, is an interdisciplinary field that plays an important role in both human and animal medical science. The Program in Neuroscience offers courses of study that lead to the degree of Bachelor of Science in Neuroscience or a minor in neuroscience at the undergraduate level. At the graduate level, programs leading to the Master of Science in Neuroscience and the Doctor of Philosophy degrees are offered. The undergraduate program for majors is designed for students who wish to study neuroscience as part of a science education, for those who wish to use their training in laboratory settings in universities, government organizations or industry, and for those who are preparing for graduate work in neuroscience or professional studies in human or veterinary medicine.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements. At least 40 of the total hours required for the bachelor’s degree must be in 300–400-level courses. Two 300–400-level courses in neuroscience with (M) designation are needed to satisfy the writing in the major university graduation requirement. The major requires specific courses in psychology, zoology, genetics and cell biology and chemistry. Students should refer to suggested courses below.

NEUROSCIENCE (125 HOURS)

Freshman Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bio S 103 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 101 [P] or 105 [P] (GER)</td>
<td>4</td>
</tr>
</tbody>
</table>

200
ENG 101 [W] (GER) 3
GenEd 110 [A] (GER) 3

**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bio S 104 [B] (GER)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Chem 106 [P] (GER)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Math 140 [N] or 171 [N] (GER)</td>
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</table>

**Sophomore Year**

**First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Chem 240¹</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Neuro 301</td>
<td>3</td>
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<tr>
<td>Phys 101 [P] (GER)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Psych 105 [S] (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SpCom 102 [C] (GER)</td>
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**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BC/EP 364</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>GenCB 301</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Phys 102 [P] (GER)</td>
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</table>

**Junior Year**

**First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercultural [I,G,K] (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Psych 311</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Zool 352</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Complete Writing Portfolio</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Neuro 303</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Neuro 406 [M]</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Psych 312</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Zool 353</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

**Senior Year**

**First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuro 404</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Neuro 430</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Neuro Electives</td>
<td>3-6</td>
<td></td>
</tr>
<tr>
<td>Other Electives</td>
<td>3-6</td>
<td></td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuro 405 [M]</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Neuro Electives</td>
<td>3-6</td>
<td></td>
</tr>
<tr>
<td>Tier III Capstone (GER)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Other Electives</td>
<td>3-6</td>
<td></td>
</tr>
</tbody>
</table>

¹ Organic 340, 341, 342, 343 (year-long sequence) can replace this course.

**MINOR IN NEUROSCIENCE**

A minor in neuroscience requires a minimum of 16 hours in Neuro, at least 13 of which must be at or above the 300 level. The minor may include up to 3 credits of Neuro 495 or 499. Students minoring in neuroscience may include 500-level courses in their minor program provided they obtain the consent of the faculty member(s) teaching the course, prior to registration. Required courses include: Neuro 301, 404; 303 or 430; and additional Neuro courses to a total of at least 16 credit hours from 201, 405, 406, 436, 464, 495, 499, 513, 526, 528, 529, 530, 534, 537, 538, 540, 543, 579.

**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 the program coordinator.

**PREPARATION FOR GRADUATE STUDY IN NEUROSCIENCE**

To be eligible for admission, candidates must meet general Washington State University requirements outlined in the *Graduate Study Bulletin* in effect at the time of their admission, as well as the current Graduate Neuroscience Program requirements. Applicants for admission to the 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 on the basic science portion (first 60 credit hours) of a professional curriculum. Applicants generally will be expected to have completed courses in analytical chemistry, organic chemistry, calculus, physics and a minimum of three courses in different areas of the biological sciences. It is advisable that applicants have a basic statistics course prior to entering the Neuroscience Program. Deficiencies in these areas must be cleared during the period of graduate study before the preliminary exam.

Applications for admission to the program must include GRE scores, transcripts for all college-level work, three letters of recommendation, and a description of career objectives. For students whose native language is not English, TOEFL scores are also required. Applications and inquiries should be directed to the Program in Neuroscience, Department of VCAPP, Washington State University, Pullman, WA 99164-6520 or email grad_neuro@vetmed.wsu.edu.

**Program in Neuroscience**

436 Fundamentals of Synaptic Organization 3 Descriptions of how different circuits in the brain execute normal and pathological fundamen-
464 Integrative Neural-Endocrine Function 3 Maintenance of homeostasis by coordinated neural and endocrine control.
495 Directed Research V 1 (0-3) to 3 (0-9) Prereq Neuro 301. May be repeated for credit; cumulative maximum 6 hours. Introduction to neuro-
499 Special Problems V 1-4 May be repeated for credit. S, F grading.
506 Generation, Degeneration, Regeneration in the Nervous System 2 Same as Zool 506.
513 Advanced Neuroanatomy 4 Same as V An 513.
521 Mammalian Neuroscience 3 (2-3) Same as VM 521P.
526 Domestic and Exotic Animal Behavior 2 (1-3) Same as V M 526P.
528 Behavioral Mechanisms in Physiology 3 Same as V Ph 528.
529 Cellular and Molecular Neurobiology 3 Same as V Ph 529.
536 General and Comparative Neurophysiology 4 Neural function in vertebrates and invertebrates from the molecular to the behavioral level; emphasis on electrophysiology. Cooperative course taught by WSU, open to UI students (Zool 530).
531 Neuroscience Laboratory Rotation 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. Same as V Ph 531.
534 Advanced Neurophysiology 3 Same as V Ph 534.
537 Physiology and Biochemistry of Neuropeptides 3 Same as V Ph 537.
538 Neuroendocrinology 3 Same as V Ph 538.
539 Research Topics in Neuroscience 2 May be repeated for credit; cumulative maximum 6 hours. Concepts and controversies within a specific and highly focused domain of neuroscience. S, F grading.
543 Ion Channels 3 Prereq graduate standing. Examination of structure and function of ion channels from classical descriptions and understandings to modern cellular and molecular insights. Cooperative course taught by WSU, open to UI students (Zool 543).
544 Neurobiology of Drug Abuse 3 Prereq 300-400-level or graduate-level general pharmacology. Impact of drugs of abuse on the central nervous system, with emphasis on neurobiological mechanisms of addiction. Cooperative course taught by WSU, open to UI students (Zool 544).
561 Receptorology 2 Same as P/T 561.
564 Brain-Endocrine Interaction 3 Same as V Ph 564.
574 Physiological Psychology 3 Same as Psych 574.
577 Behavioral Pharmacology 3 Same as Psych 577.
579 Behavioral Neuroscience 3 Same as Psych 579.
584 Sensory Bases of Behavior 3 Same as Psych 584.
586 Seminar in Physiological/Sensory Psychology 3 Same as Psych 586.
600 Special Projects or Independent Study Variable credit. S, F grading.
700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.
800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.
Intercollegiate Program in Nursing


BACCALAUREATE PROGRAM

The Intercollegiate Center for Nursing Education (ICNE) was established July 1, 1968 and exists as a joint endeavor of Washington State University, Eastern Washington University, and Whitworth College. Its cooperative undergraduate program is the first of its kind among colleges and universities in the United States.

The program is designed for two types of students: those who have 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) varies depending upon previous education and credit granted by examination.

The lower-division courses, for students with no previous preparation in nursing freshman and sophomore years, are offered on the Pullman campus. They provide the student with a foundation in the natural and social sciences and the humanities. The 300-400-level courses, junior and senior years, are offered at the Intercollegiate Center for Nursing Education in Spokane, and in Yakima. They provide the professional preparation in nursing. To apply for admission to the center, 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 Board of Nursing and accredited by the National League for Nursing (NLN) since 1986. The program builds upon an undergraduate baccalaureate degree in nursing and provides a basis for further study at the doctoral level. The purpose is to prepare students for leadership positions in advanced nursing practice. Acute Care Nurse Practitioner, Community Health Nursing, Psychiatric/Mental Health Nurse Practitioner, and Family Nurse Practitioner specializations are available.

The Master of Nursing program is open to students who hold a Bachelor of Science in Nursing degree from a nationally recognized accrediting agency. Admission is granted on the basis of the student’s (1) undergraduate g.p.a., (2) skills in history taking and physical assessment, (3) completion of a course in basic descriptive and inferential statistics, (4) eligibility for licensure as a registered nurse in Washington state, and (5) recommendations relative to professional nursing competence and prediction of success as a graduate student.

Students apply to the Graduate School Office in Pullman and the Graduate Program Office at the ICNE. Program information, determination of student interests and goals, and assignment of a faculty advisor are provided by the Graduate Program Office at the ICNE.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

BACHELOR OF SCIENCE (126 HOURS)

The Bachelor of Science in Nursing degree requires a total of 120 semester hours. All students must meet the General Education Requirements for graduation as described elsewhere in the catalog. Pre-nursing course requirements are indicated by an asterisk (*) in the schedule of studies listed below.

Fifty-nine semester hours are required in 300-400-level nursing major courses. Additional 300-400-level nursing or non-nursing electives may be required.

A grade of C or better is required in all prerequisite courses and nursing courses. Criteria for admission to the 300-400-level nursing major include an overall cumulative g.p.a. of 2.5 or higher and a cumulative g.p.a. of 2.5 or higher in prerequisite courses.

Freshman Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 101 [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>Psych 105 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Soc 101 or 102 [S] (GER)</td>
<td>3</td>
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Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Bio S 102 or 103 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 102 [P] (GER)</td>
<td>4</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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</table>

Sophomore Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural [J,G,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Stat 212</td>
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<tr>
<td>Zool 315</td>
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Second Semester

<table>
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<tbody>
<tr>
<td>FSHN 233</td>
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</tr>
<tr>
<td>Micro 101 [B] (GER)</td>
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</tr>
<tr>
<td>Nurs 200</td>
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<tr>
<td>Zool 251</td>
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<tr>
<td>Elective</td>
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Junior Year

First Semester

<table>
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<tbody>
<tr>
<td>Nurs 310</td>
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<td>Nurs 312</td>
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</tr>
<tr>
<td>Nurs 320</td>
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<tr>
<td>Nurs 321</td>
<td>4</td>
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<tr>
<td>Nurs 330</td>
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Complete Writing Portfolio

Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurs 313 [M]</td>
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<tr>
<td>Nurs 342</td>
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<td>Nurs 346</td>
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Senior Year

First Semester

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<td>Nurs 440</td>
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<td>Nurs 441</td>
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<td>Nurs 450</td>
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<td>Nurs 451</td>
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BACHELOR OF SCIENCE

Option for Registered Nurses

16 credits from Nurs 360, 364, 460, 461, 462, 463, 466.

15 credits from Nurs 310, 312, 401, 402, 440, 464.

30 credits from Nurs 320, 321, 342, 343, 344, 345, 346, 420, 421 or through credit by exam.

2 credits elective.

MASTER OF NURSING

The program may be completed in two academic years. Provision is made for part-time matriculation over a longer period of time, subject to policies and requirements of Washington State University and the ICNE. Candidates for the MN degree are required to demonstrate competency in relevant computer applications. A thesis or specified non-thesis option is required.

Core Courses and Credit Hours in the Areas of Concentration

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<th>Course</th>
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<td>Nurs 504</td>
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Nurs 507 2
Nurs 700/702 3

Courses Required for Psychiatric/Mental Health Nurse Practitioner
Nurs 541 4
Nurs 542 2
Nurs 543 4
Nurs 544 2
Nurs 546 4 or 5
Nurs 547 2
Nurs 548 4
Nurs 562 4
Nurs 581 4
Nurs 582 3
PharP 525* 3
Electives Variable

Courses Required for Acute Care Nurse Practitioner
Nurs 537 2
Nurs 539 4
Nurs 562 4
Nurs 563 3
Nurs 576 3
Nurs 581 4
Nurs 582 3
Nurs 595 5

Courses Required for Community Health Nursing
Nurs 551 3
Nurs 552 2-4
Nurs 554 3
Nurs 556 3 or 4
Nurs 564 2 or 3
Nurs 566 3 or 4
Electives Variable

Courses Required for Family Nurse Practitioner
Nurs 537 2
Nurs 562 4
Nurs 563 3
Nurs 564 3
Nurs 565 3
Nurs 567 4
Nurs 568 4
Nurs 569 4
Nurs 581 4
Nurs 582 3
Nurs 595 5
Nurs 702 3
*Recommended elective.

307 Assertiveness Training for Nurses 2 Prereq junior in Nurs. Assertion techniques and conflict management skills in personal and nursing situations; integrating theoretical concepts into practical situations. S, F grading.
310 Pharmacological Basis of Nursing Practice 2 Prereq major in Nurs or written permission of instructor. Utilization of pharmacological concepts as a basis for critical thinking and decision making in nursing.
312 Pathophysiological Basis of Nursing Practice 3 Prereq major in Nurs or written permission of instructor. Pathophysiologic processes, interrelatedness with physiological defense mechanisms, theories of stress adaptation, age and psychological/behavioral responses.
313 (M) Mental Health Concepts: Individual and Family 2 Prereq major in Nurs or written permission of instructor. Critical analysis of nursing’s use of mental health concepts incorporating the neural basis of behavior, social systems, and culture.
320 Nursing Concepts: Foundations 3 Prereq Nums 310, 312, 330, or c/l. Nursing concepts foundational to care of well/ill clients; nursing process, nurse/client roles, communication, relationship, basic needs and teaching-learning theories.
321 Nursing Practice: Foundations 4 (0-12) Prereq Nums 310, 312, 320, 330, or c/l. Clinical application of the nursing process; psychomotor skills and interpersonal relationships in the care of adult clients.
330 Nursing Concepts and Practice: Health Assessment 3 (2-3) Prereq major in Nurs or written permission of instructor. Holistic multi-dimensional assessment of the well client throughout the adult years; comparison of findings with established norms.
342 Nursing Concepts: Maternity Nursing 2 Prereq Nums 310, 312, 320, 330, 313, 346, or c/l. Normal reproductive processes and common health problems associated with reproduction; assessment and nursing care during the antepartum, intrapartum, and postpartum periods. S, F grading.
343 Nursing Practice: Maternity Nursing 3 (0-9) Prereq Nums 310, 312, 320, 330, 313, 342, 346, or c/l. Experience in the care of mothers in the antepartum, intrapartum, and postpartum periods and newborns; family care and family planning. S, F grading.
344 Nursing Concepts: Nursing of Children 2 Prereq Nums 310, 312, 320, 330, 313, 346, or c/l. Normal growth and development concepts applied to maintenance of child health, care of acutely ill hospitalized children, and needs of children requiring chronic care.
345 Nursing Practice: Nursing of Children 3 (0-9) Prereq Nums 310, 312, 320, 330, 313, 344, 346, or c/l. Experience in health maintenance and nursing care of children with acute and/or chronic health problems; family is included in care planning. S, F grading.
346 Nursing Concepts: Family and Child Development 2 Prereq major in Nurs or written permission of instructor. Physical, cognitive, psychosocial, and moral development of children, infancy through adolescence; theoretical framework; family development and family theory.
350 Therapeutic Communication in Nursing 1 or 2 Prereq junior in Nurs. Therapeutic communiation and relationship development with the well/ill client; various coping strategies used by nurse and client. S, F grading.
360 Professional Nursing Concepts and Issues 2 Prereq major in Nurs, RN or by interview. Philosophical, historical, economic, legal/ethical, and professional issues designed for registered nurses to build upon previously acquired professional concepts.
364 Nursing Concepts and Practice: Health Assessment for RNs 3 (2-3) Prereq major in Nurs, RN or by interview. Holistic assessment of clients throughout the age continuum. For RNs with a basic knowledge of assessment skills of adult clients.
398 Special Topics VI-3 May be repeated for credit; cumulative maximum 6 hours.
401 (M) Nursing Leadership: Research 2 Prereq major in Nurs or written permission of instructor. Focus on the process of scientific inquiry used in investigating nursing problems.
402 Nursing Leadership: Group Theory 2 Prereq major in Nurs or written permission of instructor. Group and leadership theories as they relate to the practice of professional nursing.
403 Nursing Leadership and Management 3 Prereq Nums 420, 421; or written permission of instructor. Application of leadership/management theories to selected issues in nursing practice; analysis of selected issues critical to the professional nurse.
420 Nursing Concepts: Adult 5 Prereq Nums 342, 343, 344, 345, or c/l. Medical-surgical concepts as a basis for critical thinking and decision making in nursing.
421 Nursing Practice: Adults 6 (0-18) Prereq Nums 342, 343, 344, 345, 401, 402, 420, or c/l. Holistic nursing management of adult health/illness problems; demonstration of critical thinking in development of clinical judgement and skill acquisition.
440 Nursing Concepts: Community Health 2 Prereq Nums 420, 421, or c/l. Synthesis of nursing and public health concepts with focus on community as partner, and population-based practice.
441 Nursing Practice: Community Health 4 (0-12) Prereq Nums 420, 421, 402, 403, or c/l. Clinical application of nursing, public health, and management concepts; emphasis on population-based collaborative practice. S, F grading.
450 Nursing Concepts: Psychiatric/Mental Health 3 Prereq Nums 420, 421. Nursing process with clients experiencing psychiatric/mental health disruptions; history, theories, legal/ethical issues of psychiatric/mental health nursing.
451 Nursing Practice: Psychiatric/Mental Health 3 (0-9) Prereq Nums 402, 420, 421; 450 or c/l. Clinical application of nursing process with patients experiencing acute and chronic psychiatric/mental health disruptions. S, F grading.
462 Selected Nursing Concepts: Psychiatric/Mental Health 2 Prereq Nums 402 or c/l. or by interview. Clinical application of psychiatric/mental health nursing process with individuals and families experiencing psychiatric/mental health disruptions.
463 Selected Nursing Practice: Psychiatric/Mental Health 2 (0-9) Prereq Nums 402, 420, or c/l. or interview. Clinical application of psychiatric/mental health nursing process with individuals and families experiencing acute chronic disruptions.
464 Nursing Practice: Community/Public Health Population - Focused Practice 4 (0-12) Prereq Nurs 440 or c//; NLN Mobility Exam (Adult), RN. Application of community/public health nursing and management concepts with emphasis on population-based collaborative practice.

466 Nursing Leadership/Management: Concepts and Principles 2 Prereq Nurs 560, 461 or by interview. Leadership/management applied to nursing; theoretical basis for the baccalaureate nurse’s role in nursing management.

477 Health Care Ethics 2 or 3 Prereq senior standing. Ethical theories including deontology, telology, virtue ethics and applicability to ethical dilemmas in nursing. Credit not granted for both N urs 477 and 577.

483 Gerontological Nursing 3 Prereq senior standing. Selected physical, emotional and social problems of the elderly; identification of nurse’s role and interventions in a variety of settings; public policy issues.

498 Special Topics in Nursing V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq Nurs 320 or by interview.

499 Special Problems V 1-4 May be repeated for credit with approval of S, F

504 Methods of Nursing Research 4 Research process as foundational to both conduct of scientific inquiry and utilization of findings.

507 Health Care Policy Analysis 2 Prereq graduate standing in Nurs. Analysis of health care system policy; exploration of issues of clinical management and community resource utilization including advocacy techniques.

513 Innovations in Leadership and Management V 3, 4 (3-3), or 5 (3-6) Prereq graduate standing in Nurs. Key issues affecting nursing administration; nursing and management theories for application in nursing service settings.

517 Financial and Human Resources Management V 3, 4 (3-3), or 5 (3-6) Prereq graduate student in Nurs. Human resource utilization theories and concepts in nursing systems; application of economic principles to human resource utilization and program development.


523 Nursing Informatics: Role Analysis and Curriculum Development V 3-6 Prereq graduate standing in Nurs. Key issues affecting nursing education; application of educational theories in a variety of nursing education settings; critical analysis of concepts.

524 Multimedia Approaches to Instruction and Evaluation V 2-4 Prereq Nurs 521. Group and individualized instruction and evaluation; creating instructional software, use of TV studio, AV, and computers.

536 Practicum in Adult Acute Care Nursing 4 (1-9) or 5 (1-12) Prereq graduate standing in Nurs. Individualized field experience and seminar designed to provide advanced competency in acute care nursing of adults in role of expert clinician.

537 Role Analysis: Advanced Practice 2 (1-3) Prereq graduate standing in Nurs. Emphasis on role analysis including interdisciplinary relationships, consultative skills, responsibility, activities, and functions of the advanced practice nurse.

539 Clinical Nurse Specialist Practicum 2 (0-6) Prereq Nurs 537 or c//. Selected key concepts and issues essential to the practice of clinical nurse specialists.

541 Psychiatric/Mental Health Nursing: Individuals 4 (3-3) Prereq graduate standing in Nurs. Psychopathology and appropriate nursing interventions with individuals across age continuum; families, groups, and communities.

542 Psychiatric/Mental Health Advanced Practice Role Development 2 Prereq BSN degree. Advanced practice psychiatric/mental health nursing role development emphasizing systems theory and definition of scope and standards of independent and collaborative roles.

543 Advanced Psychiatric Nursing Concepts: Group Psychotherapy 4 (3-3) Prereq Nurs 541, 542, or by interview only. Introduction to theory and practice of group psychotherapy; Milieu and other selected theories are studied and applied to nursing practice.

544 Differential Diagnosis of Medical and Psychiatric Mimics 2 Prereq Nurs 581, 582, or c//. Nursing theoretical differential assessment and management principles of physical/psychiatric symptomatology in determining diagnoses and implementing appropriate treatment.

546 Practicum in Psychiatric/Mental Health Nursing 4 (1-9) or 5 (1-12) Prereq Nurs 541, 543. Individualized clinical experience/semi-nar designed to provide advanced competency, accountability, leadership in psychiat- ric/mental health nursing.

547 Practice Management and the Psychiatric Nurse Practitioner 2 Prereq last semester of NP program. Evaluation of the role of the psychiatric nurse practitioner across a variety of health care contexts, examining current practice issues.

548 Psychiatric Nurse Practitioner Internship V 1-9 Prereq Nurs 546, PharP525, by interview only. Application and integration of theory, research findings, and interventions in the case of clients with psychiatric disorders.

549 Dimensions of Substance Abuse 2 Prereq Nurs 504, 537, 541, 562, 581, 582. Introduction to assessment, evaluation, prevention, and treatment for substance abuse.

551 Advanced Community Health Nursing Concepts 3 Prereq graduate standing in Nurs. Evaluation of concepts inherent in advanced community health practice at the community/aggregate level.

552 Family Nursing in the Community V 2-4 Theoretical approaches to the analysis of normal and at-risk families; application of family assessment and intervention models when planning care.

554 Epidemiological Approaches to Community Health 3 Prereq graduate standing in Nurs. Epidemiologic application to health; implications for health promotion, disease prevention; focus: knowledge and skills required to obtain and use data bases.

556 Advanced Community Health Nursing Practice V 3 (2-3) or 4 (2-6) Prereq Nurs 551, 552, 554, 566; 565 or c//. Combination of group seminar, individualized field experience with focus on application, analysis of concepts and implementation of project.

562 Advanced Health Assessment and Differential Diagnoses 4 (3-3) Prereq graduate standing in Nurs. Advanced holistic health assessment/differential diagnosis; analysis of data from biological, sociological, psychological, cultural, and spiritual dimensions.

563 Advanced Pharmacological Concepts and Practice 3 (2-3) Prereq graduate standing in Nurs. Pharmacology for clinical practice including decision making, prescribing, drug monitoring, and patient education associated with prescriptive authority.

564 Health Promotion in Nursing Practice 2 or 3 Prereq graduate standing in Nurs. Theoretical bases including cultural variations for selected health promotion strategies for neonates through elderly clients.

565 Information Management for Nursing Practice 3 (2-3) Prereq computer competency in word processing/spreadsheets. Application/evaluation of nursing informatics; use for management of patient care data in nursing practice and administration.

566 Community Analysis and Program Planning 3 (2-3) or 4 (2-6) Prereq graduate standing in Nurs. Application of core public health functions in community analysis, program development and program evaluation.

567 Primary Care: Adults and Elders 4 (2-9) Prereq Nurs 562, 563, 581, 582. Assessment, differential diagnosis, therapeutic intervention with adults; developmental changes; opportunities to provide diagnostic, maintenance, and follow-up care.


569 Primary Care: Family 4 (1-9) Prereq Nurs 562, 563, 581, 582. Assessment, differential diagnosis, therapeutic intervention with individuals in childbearing, childrearing, and multigenerational families.

571 Adult and Elders: Inpatient Management of Chronic Problems 6 (3-9) Prereq Nurs 562, 563, 581, c// in 575, 582. Diagnosis and treatment of inpatient adults and elders with low to medium acuity.

572 Adult and Elders: Inpatient Management of Acute/Critical Problems 6 (3-9) Prereq Nurs 562, 563, 581, c// in Nurs 575, 582. Diagnos- is and treatment of inpatient adults and elders with high to critical acuity.

575 Diagnostic Testing and Interpretation 3 (2-3) Prereq graduate standing in Nurs. Analysis of diagnostic findings across the age continuum for clinical decision making; selected diagnostic and treatment skills for advanced practice.

576 Advanced Concepts in Nursing 2 Prereq graduate standing in Nurs. Exploration of linkage between nursing science concepts and nursing practice through analysis of relevant research.

577 Health Care Ethics 2 or 3 Graduate-level counterpart of Nurs 477; additional requirements. Credit not granted for both Nurs 477 and 577.

581 Advanced Physiology and Pathophysiology I 4 Prereq graduate standing in Nurs. Advanced cellular and system physiology/pathophysiology related to health care of individuals with cardiology, renal, and hematological diseases.
582 Advanced Physiology and Pathophysiology
II 3 Prereq graduate standing in nursing. Advanced cellular and system physiology/pathophysiology related to health care of individuals with neuroendocrine, gastrointestinal, and immune diseases.

583 Advanced Gerontological Nursing 3 or 4 Prereq graduate standing in Nurs. Comprehensive analysis of research studies regarding nursing care of elderly persons; nursing interventions and health of elderly persons.

592 School Nursing I 5 (3-6) or 6 (4-6) Prereq graduate standing in Nurs. Use of nursing process to assess and evaluate total health-development status of students in school environment.

594 School Nursing II 3 (2-3) or 4 (3-3) Prereq Nurs 504, 592. Knowledge and application: advanced health assessment, care of the school-aged child, consultation, school health program development and evaluation.

595 Internship V 1-5 May be repeated for credit; cumulative maximum 6 hours. Prereq Nurs 562, 563, 567. Application and integration of theoretical content, research findings, and assessment and intervention strategies into primary care practice. S, F grading.

596 Post-Master’s Psychiatric Nurse Internship V 1-9 May be repeated for credit; cumulative maximum 9 hours. Prereq prior completion of course work for a clinical nurse specialist in Psychiatric Mental Health Nursing or Psychiatric Nurse Practitioner, malpractice insurance as an ARNP with prescriptive authority, by interview only. Supervised performance of the ARNP role in psychiatric nursing care for patients presenting primary psychiatric disorders.

598 Advanced Topics in Nursing V 1-3 May be repeated for credit; cumulative maximum 6 hours.

599 Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

Program in Nutrition
Professor and Program Director: A. McCurdy; Professors, B. Chew, F. Hoskins, R. Kincade, L. Massey, D. Price, B. Swanson; Associate Professors, J. Armstrong-Shultz, K. Beerman, V. Hillers, J. McNamara, M. Mitchell, M. Nelson, D. Pond-Smith, T. Shultz; Assistant Professor, S. McGuire.

The interdepartmental graduate Program in Nutrition offers a program of study leading to a Doctor of Philosophy (Nutrition). Participating faculty are from the areas of food science and human nutrition, animal sciences, and human development.

The PhD program has two options: biological science and social science. In addition to taking advanced courses in nutrition, all students must select some supporting course work in physiology, biochemistry, and statistics. Students in the social science option select 12 credits of graduate social science, such as education, psychology, sociology, while biological science option students select additional course work in chemistry and biology. Programs of study and research are individually planned by the student with an appropriate graduate advisory committee. The emphasis is on scientific research in nutrition. Studies of the metabolism of nutrients, additives and various other biological chemicals are currently being explored in human beings and other animal systems. Behavioral nutrition research examines sociocultural, economic and political influences on food choice, dietary quality and nutritional status using social science research methods such as surveys, focus groups and in-depth interviews. The combined research facilities of participating departments are available. Students are generally located in the various cooperating departments where they conduct their research.

Expected preparation for doctoral study in nutrition are biochemistry, three semesters of biological science, physiology, mathematics and two semesters of 300-400-level nutrition. Students choosing the biological science option should also have quantitative chemistry and physics. Applications must include complete transcripts and three letters of recommendation attesting to the applicant’s qualifications for graduate study, and a statement of area of interest and program option.

Description of Courses

Nutrition

Nutr 500 Seminar in Nutrition 1 May be repeated for credit; cumulative maximum 5 hours. Seminar on current research issues in nutrition.

505 Experimental Nutrition 3 (1-6) Same as A S 505.

507 Advanced Nutrition Metabolism 2 Same as A S 507.

508 Seminar-Written 2 Same as FSHN 508.

513 Mineral and Vitamin Metabolism 4 Same as A S 513.

520 Research Methods in Behavioral Nutrition 3 Same as FSHN 520.

521 Research Techniques in Nutrition 3 (1-6) Same as FSHN 521.

526 Advanced Community Nutrition 3 Same as FSHN 526.

531 Nutrition and Aging 2 Same as FSHN 531.

533 Pathophysiology of Human Nutrition 3 Same as FSHN 533.

598 Advanced Topics in Nutrition 1 or 2 May be repeated for credit. Recent research in nutrition.

600 Special Projects or Independent Study Variable credit. S, F grading.

800 Doctoral Research, Dissertation and/or Examination Variable credit. S, F grading.

Program in Pharmacology and Toxicology


The sciences of pharmacology and toxicology are important to maintenance of human and animal health, food resources, and environmental quality. Pharmacologists and toxicologists study the interaction of chemicals with biological systems to understand their adverse effects and their useful effects for the treatment of disease. The Pharmacology and Toxicology Program consolidates the research and teaching expertise of faculty primarily in the colleges of Pharmacy and Veterinary Medicine, and also in the Departments or Programs of Chemistry, Entomology, Food Science and Human Nutrition, Genetics and Cell Biology, Neuroscience, Psychology and Zoology at WSU and in the Food Science and Toxicology Department at the University of Idaho. The Pharmacology and Toxicology Program is designed to prepare students for careers in research and teaching with both Master of Science and Doctor of Philosophy degrees offered.

Students entering the Pharmacology/Toxicology Program should have completed undergraduate work in biology, chemistry (including organic chemistry and biochemistry), mathematics through calculus, and physiology. Deficiencies may be rectified during the first year of graduate study. Each student in the program is required to complete the core curriculum:

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Student must have taken a physiology course, if student has not taken a physiology course sometime in student's bachelor degree career, student may take a 300-level (or higher) physiology course during student's course of study. Students in both the M.S. and Ph.D. programs are expected to develop an area of emphasis that is consistent with the research capabilities and interests of the faculty. These areas include research in carcinogenesis and cancer treatment, neuropharmacology, immunotoxicology, and the cardiovascular system.

In addition, 13 hours from advanced courses in pharmacology or toxicology are required for the various areas of emphasis. Elective course work that complements each student’s research and career interests is selected by the student in consultation with his or her advisor. Each student is required to write a thesis based upon original laboratory research. The research interests of the faculty span a broad spectrum; e.g. carcinogenesis and cancer chemotherapy, endocrine pharmacology, hepatotoxicology, immunopharmacology and immunotoxicology, neurochemical and central nervous system pharmacology, the physiology and biochemistry of neupeptide transmitters and hormones, thrombosis and hematosis, endocrinology, drug metabolism, antioxidants, role of drug and chemical metabolism in toxicological responses, behavioral pharmacology/toxicology, the effects of diet on metastasis of cancer, neuroendocrinology, the pharmacology/toxicology of alcohol, immunotoxicology of environmental contaminants and pesticides. Veterinary medicine and pharmacy faculty in the Pharmacology and Toxicology Program are housed primarily in Wegner Hall. The building has been re-
modeled and provides an excellent atmosphere for study and research. Modern instruments available for pharmacological and toxicological research include: UV-, IR-, CD-, fluorescence-, and FT-NMR spectrometers, gas and high performance liquid chromatographs, mass spectrometer, centrifuges, ultracentrifuges, flow cytometer and scintillation counters. In addition, the building houses a health sciences area library and a vivarium equipped to maintain a variety of research animals. Excellent research facilities house other members of the pharmacology/toxicology faculty at the University of Idaho, and in various WSU buildings. You may visit our program website at: http://www.pharmtox.wsu.edu/. Applications for admission to the program must include: 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 are required. Applications and inquiries should be directed to: Admissions Committee, Pharmacology/Toxicology Graduate Program, WSU, P.O. Box 99164-6510, Pullman, WA 99164-6510.

Description of Courses

Pharmacology and Toxicology

P/T

501 Perspectives in Pharmacology and Toxicology 1 Same as V Ph 501.

505 Principles and Methods of Toxicology 3 Basic concepts in toxicology and the methodology currently employed for toxicological investigations. Cooperative course taught by WSU, open to UI students (FST 505).

506 Principles of Pharmacology I 3 Prereq BC/BP 563 or c//, college-level physiology course or c//. Fundamental mechanisms of drug action and the factors that modify drug responses; overview of all areas of pharmacology. Cooperative course taught by WSU, open to UI students (FST 506).

510 Advanced Pharmacokinetics/Toxicokinetics 2 Prereq P/T 506. Kinetics of drug absorption, distribution, elimination, and pharmacologic response. Cooperative course taught by WSU, open to UI students (FST 510A).

511 Topics in Toxicology V 1-4 May be repeated for credit; cumulative maximum 12 hours. By interview only. Topics of current interest in toxicology and closely related areas. Cooperative course taught by WSU, open to UI students (FST 511).

512 Topics in Pharmacology V 1-4 May be repeated for credit; cumulative maximum 12 hours. By interview only. Topics of current interest in pharmacology and closely related disciplines. Cooperative course taught by WSU, open to UI students (VS 512C).

525 Instrumental Methods in Pharmacology and Toxicology 3 (2-3) Prereq Chem 342. Procedures and instruments used in analytical and separation methods. Cooperative course taught by WSU, open to UI students (FST 525).

532 Metabolism of Drugs and Toxins 2 Prereq BC/BP 563/564; Rec P/T 506. Pathways, enzymology and mechanisms of metabolism of drugs, environmental contaminants and other xenobiotics; pharmacological and toxicological impact of metabolism. Cooperative course taught by WSU, open to UI students (FST 532).

535 Pathophysiology of Blood 2 Same as V Ph 535.

556 Insecticides: Toxicology and Mode of Action 1 Same as Entom 556.

557 Herbicides: Toxicology and Mode of Action 1 Same as Entom 557.

558 Pesticide Topics 1 Same as Entom 558.

561 Receptology 2 Prereq P/T 506. The role of ligand-receptor interactions in biological responses to drugs and poisons. Cooperative course taught by WSU, open to UI students (VS 561).

564 Brain-Endocrine Interaction 3 Same as V Ph 564.

566 Molecular Mechanisms of Target Organ Toxicity 2 Prereq P/T 505. Molecular and mechanistic aspects of chemical-induced toxicity in the liver, immune system, kidney, heart and central nervous system. Cooperative course taught by WSU, open to UI students (FST 566).

567 Risk Assessment Methodologies 2 Prereq P/T 506, by interview only. Principles of toxicity testing, decision theory, good laboratory practices, protocol development and risk assessment methods. Cooperative course taught by WSU, open to UI students (FST 567).

572 Fundamentals of Oncology 3 Prereq BC/BP 564. Thorough overview of cancer biology encompassing basic cellular and molecular mechanisms of carcinogenesis and tumor progression, treatment and prevention. Cooperative course taught by WSU, open to UI students (FST 572).

597 Pharmacology and Toxicology Seminar 1 May be repeated for credit; cumulative maximum 12 hours, S, F grading. Cooperative course taught by WSU, open to UI students (FST 597).

599 Critical Evaluation of Current Pharmacology/Toxicology Research 1 May be repeated for credit; cumulative maximum 6 hours. Prereq P/T 501. Individual study of recent research findings and critical evaluation of these data to instructor and other students.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

College of Pharmacy


The objective of the College of Pharmacy is the development of students for a lifetime of responsible service in the pharmaceutical profession. The curriculum of the college is designed to prepare graduates for careers in community pharmacy, hospital practice, industry, nursing homes, government, and teaching. The schedule of studies for the PharmD degree is a six-year program consisting of two prepharmacy years and four professional years. The professional curriculum is built upon a solid foundation of general sciences and mathematics and is integrated with courses in the humanities and social sciences. Throughout the professional years of instruction, special attention is given to developing in students a concern for the total health care of patients and the general public. For example, the clinical pharmacy program on campus and in cooperating hospitals of the area emphasizes the role of the pharmacist in patient care in both institutions and community practice. The preclinical basic science courses are carefully designed to prepare students for such experience. The experiential component of the pharmacy curriculum is conducted primarily off campus. The experiential program is composed of 42 weeks divided into seven six-week blocks, two blocks of externships and five blocks of clerkships. The externship program is designed to provide students with practical professional experience in both community pharmacy settings and institutional pharmacy settings including hospitals, and extended care facilities. The clinical clerkship is an interdisciplinary experience in which the pharmacy student is assigned to a team of health care professionals in a hospital or other patient care setting. These practice experiences are conducted at a variety of community and hospital sites, primarily in the Spokane, Washington area but may also include other locations. Students are encouraged to complete one or both externships during the summer following the second professional year. The remaining externships and clerkships are completed during the calendar year immediately following the end of the spring semester of the third professional year.

Departmental Prepharmacy

Requirements For Entry-Level PharmD Degree

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bio S 103, 104</td>
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</tr>
<tr>
<td>2. Chem 105, 106</td>
<td>8</td>
</tr>
<tr>
<td>3. Chem 340, 341, 342</td>
<td>8</td>
</tr>
<tr>
<td>4. Math 140</td>
<td>4</td>
</tr>
<tr>
<td>5. Micro 301</td>
<td>4</td>
</tr>
<tr>
<td>6. Statistics</td>
<td>3</td>
</tr>
<tr>
<td>7. BC/BP 364</td>
<td>4</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td>39</td>
</tr>
</tbody>
</table>

8. Computer Literacy: Students must demonstrate knowledge in use of word processing and spreadsheet software.

9. Medical Emergencies: Students are required to become certified in first aid and CPR.

Students must demonstrate competence in verbal, written and interpersonal communication skills and demonstrate commitment to leadership, community service and activism.

Total Credit Hours for General Education and Prepharmacy Requirements = 62
Total Credit Hours Required for Graduation Under the PharmD Program = 207 credits.

The program will enroll 72 students annually for a total enrollment of 288 in all four years.
### Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

## PREPHARMACY DEGREE PROGRAM

**207 HOURS**

### Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Bio S 103 [B] (GER)</td>
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<td>Chem 105 [P] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Math 140 [N] (GER)</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Bio S 104 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 106 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
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</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
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### Sophomore Year

<table>
<thead>
<tr>
<th>First Semester</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Chem 340</td>
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<tr>
<td>Communications Proficiency [C,W] (GER)</td>
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<tr>
<td>Intercultural [I,G,K] (GER)</td>
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<tr>
<td>Micro 301</td>
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<table>
<thead>
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<th>Second Semester</th>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>Chem 342</td>
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<td>Tier III Capstone (GER)</td>
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### PHARMACY DEGREE PROGRAM

#### Junior Year

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<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Micro 412</td>
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<tr>
<td>PharP 450</td>
<td>3</td>
</tr>
<tr>
<td>PharP 451</td>
<td>1</td>
</tr>
<tr>
<td>PharS 332</td>
<td>1</td>
</tr>
<tr>
<td>PharS 437</td>
<td>1</td>
</tr>
<tr>
<td>PharS 531P</td>
<td>3</td>
</tr>
<tr>
<td>Zool 315</td>
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<tr>
<td>Zool 352</td>
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<table>
<thead>
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<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>GenCB 450</td>
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</tr>
<tr>
<td>PharP 572P</td>
<td>1</td>
</tr>
<tr>
<td>PharS 532P</td>
<td>3</td>
</tr>
<tr>
<td>PharS 541P</td>
<td>3</td>
</tr>
<tr>
<td>Zool 353</td>
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<tr>
<td>Electives (Non-Professional)</td>
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#### Senior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>PharP 551P</td>
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</tr>
<tr>
<td>PharP 573P</td>
<td>1</td>
</tr>
<tr>
<td>PharP 581P</td>
<td>3</td>
</tr>
<tr>
<td>PharS 533P</td>
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<tr>
<td>PharS 542P</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>PharP 538P</td>
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<tr>
<td>PharP 552P</td>
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| Summer Term, PharP 461 and/or 462 | 7-14 |

#### Fifth Year

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<th>Hours</th>
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<tbody>
<tr>
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<td>PharP 541P</td>
<td>2</td>
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<td>PharP 553P</td>
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<tr>
<td>PharP 557P</td>
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<tr>
<td>PharS 558P</td>
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<tr>
<td>PharS 575P</td>
<td>2</td>
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<tr>
<td>PharS 531P</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
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<tr>
<td>PharS 542P</td>
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<tr>
<td>PharS 543P</td>
<td>2</td>
</tr>
<tr>
<td>PharS 526P</td>
<td>2</td>
</tr>
<tr>
<td>PharS 545P</td>
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</table>

| Summer Term, PharP 461 and/or | 7-14 |

#### Sixth Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>PharP 561P</td>
<td>0-12</td>
</tr>
<tr>
<td>PharP 562P</td>
<td>0-12</td>
</tr>
<tr>
<td>PharP 563P</td>
<td>0-6</td>
</tr>
<tr>
<td>PharP 599P</td>
<td>2</td>
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</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PharP 561P</td>
<td>0-12</td>
</tr>
<tr>
<td>PharP 562P</td>
<td>0-12</td>
</tr>
<tr>
<td>PharP 563P</td>
<td>0-6</td>
</tr>
<tr>
<td>PharP 599P</td>
<td>2</td>
</tr>
</tbody>
</table>

Students must complete 12 credits each in acute care and ambulatory care and 6 credits in other clerkships. Students may complete 480 hours of approved internship to fulfill each of these courses.

### Description of Courses

#### Pharmaceutical Science

| PharS 332 Mathematical Calculations I | The mathematics of pharmacy for dispensing practitioners; introduction to statistical methods. S, F grading. |
| 437 Pharmaceutics Laboratory I | 1 Prereq PharS 431. Laboratory in the preparation of solutions, solid, semisolid, and dispersed liquid dosage forms. |
| 499 Special Problems V | 1-4 May be repeated for credit. S, F grading. |
| 532P (432) Pharmaceutics II | 3 Prereq PharS 531P. Theory, preparation, and application of solid, semisolid, and dispersed liquid dosage forms. |

| PharS 533P (433) Pharmaceutics III | 3 Prereq PharS 332, 531P, 531P. Kinetics of drug absorption, distribution, and elimination; dosage regimens, design, bioavailability. |
| 534P (531P) Pharmaceutical Biotechnology | 2 Prereq PharS 534P. Pharmacological and pharmaceutical properties of drugs and therapies derived from biotechnology. |
| 541P (441) Pharmacological Basis of Therapeutics II | 3 Prereq PharS 540P. Molecular pharmacology and drug action; drug development; genetic factors and biochemical processes involved in drug disposition; drug interactions; and micronutrients. |
| 542P (442) Pharmacological Basis of Therapeutics III | 8 Prereq PharS 541P. Structure activity relationship, mechanism of action, pharmacodynamics of chemotherapeutics, peripheral nervous system, cardiovascular, renal and gastrointestinal drugs. |
| 543P (444) Pharmacological Basis of Therapeutics IV | 3 Prereq PharS 542P. Medicinal chemistry, pharmacology and toxicology of drugs acting on the central nervous system and endocrine system; local and general anesthetics. |
| 544P (446) Toxicology | 2 Prereq PharS 541P or c/. Mammalian toxicology emphasizing basic concepts, target organ toxicity, carcinogenesis, clinical toxicology, and the toxicology of natural products and dietary supplements. |
| 545P (541P) Quality Assurance | 1 Prereq PharP 531P. PharS 533P. Continual quality improvement and a survey of selected quality assurance programs in the pharmaceutical industry and institutional pharmacy practice. |

#### Pharmacy Practice

| PharP 217 Drugs in Our Society | 2 For nonmajors. The use and abuse of drugs. |
| 250 [S] The American Health Care System | 3 Development of the American health care delivery system; emergence of the health professions, insurance, hospitals, consumer advocacy, health policy formation. |
| 450 Peer Health Advocacy | 3 By interview only. Principles and techniques of peer health education and advocacy. |

#### Pharmacy Practice I

1 Basic clinical skills, interpretation of patient data, problem-solving skills, professional communications, professionalism and pharmacy ethics.

#### Community Practice Externship

1 (0-3) to 7 (0-21) Prereq PharP 454, 474. Practical professional experience in community pharmacy setting under the supervision of an approved pharmacist preceptor. S, F grading.

#### Institutional Pharmacy Externship

1 (0-3) to 7 (0-21) Prereq PharP 454, 474. Practical professional experience in an institutional pharmacy setting under the supervision of an approved pharmacist preceptor. S, F grading.

#### [T] Human Body Systems

3 Prereq FSHN 130 or Micro 101; introductory biology; completion of one Tier I and three Tier II courses in appropriate area of coherence. Lifestyle skills: medical self care, including use of over-the-counter drugs, fitness nutrition, stress management, and body image.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>504P</td>
<td>Health Care in Rural America</td>
</tr>
<tr>
<td>511P</td>
<td>Advanced Pharmacotherapeutics 1 Pharmacotheapy of infectious diseases</td>
</tr>
<tr>
<td>512P</td>
<td>Advanced Pharmacotherapeutics 2 Pharmacotherapy of cardiovascular disorders</td>
</tr>
<tr>
<td>513P</td>
<td>Advanced Pharmacotherapeutics 3 Pharmacotherapy of musculoskeletal disorders</td>
</tr>
<tr>
<td>514P</td>
<td>Advanced Pharmacotherapeutics 4 Pharmacotherapy of pulmonary diseases</td>
</tr>
<tr>
<td>515P</td>
<td>Advanced Pharmacotherapeutics 5 Pharmacotherapy of renal diseases</td>
</tr>
<tr>
<td>516P</td>
<td>Advanced Pharmacotherapeutics 6 Pharmacotherapy of hematology and oncology diseases</td>
</tr>
<tr>
<td>517P</td>
<td>Advanced Pharmacotherapeutics 7 Pharmacotherapy of endocrine disorders</td>
</tr>
<tr>
<td>518P</td>
<td>Advanced Pharmacotherapeutics 8 Pharmacotherapy of gastrointestinal disorders</td>
</tr>
<tr>
<td>519P</td>
<td>Advanced Pharmacotherapeutics 9 Pharmacotherapy of neuropsychiatric disorders</td>
</tr>
<tr>
<td>525P</td>
<td>Practical Psychiatric Drug Therapy for Clinicians 3 Review of practical psychiatric drug therapy for physicians, pharmacists, mental health professionals and others working in the mental health field</td>
</tr>
<tr>
<td>531P</td>
<td>Clinical Research Methods I: Pharmacoeconomics V 1-3 May be repeated for credit; cumulative maximum 5 hours. Prereq Math 140. Pharmacoeconomics and biostatistics</td>
</tr>
<tr>
<td>532P</td>
<td>Clinical Research Methods II: Pharmacoeconomics V 1-3 May be repeated for credit; cumulative maximum 3 hours. Prereq PharD student. Pharmacoeconomy and biostatistics</td>
</tr>
<tr>
<td>533P</td>
<td>Parenteral Products 2 (1-3) Prereq PharS 437, 533P. Preparation of intravenous admixtures, parenteral nutrition; therapeutic monitoring of antimicrobial surgical prophylaxis, fluid/electrolyte, parenteral nutrition, and emergency situation medications</td>
</tr>
<tr>
<td>541P</td>
<td>Physical Assessment 2 (1-3) Collection and evaluation of medicated patient information; monitoring efficacy and toxicity of drug therapy; physical assessment and clinical laboratory values. S, F grading</td>
</tr>
<tr>
<td>542P</td>
<td>Wellness and Health Promotion 3 Prereq PharD student. Health needs and problems of distinct populations and behaviors aimed at prevention, early detection, and treatment of health problems</td>
</tr>
<tr>
<td>552P</td>
<td>Pharmacotherapeutics II 4 Prereq BC/FP 364, Micro 301, PharP 451, 533, 542P. Clinical therapeutics and the pharmacist's role in monitoring efficacy and safety of chemotherapy agents, cardiovascular drugs, antihistamines and NSAIDs</td>
</tr>
<tr>
<td>553P</td>
<td>Advanced Therapeutics I V 1-5 May be repeated for credit; cumulative maximum 5 hours. Series of modules that provide the foundation of pathophysiology and treatment of various diseases</td>
</tr>
<tr>
<td>554P</td>
<td>Advanced Therapeutics II V 1-5 May be repeated for credit; cumulative maximum 5 hours. Clinical therapeutics; pharmacist's role in monitoring efficacy and safety of drugs acting on the central nervous/endocrine systems, local/general anesthetics</td>
</tr>
<tr>
<td>555P</td>
<td>Special Topics 2 Seminars and workshops based on contemporary topics related to the practice of pharmacy. S, F grading</td>
</tr>
<tr>
<td>557P</td>
<td>Clinical Pharmacokinetics V 1 (0-3) to 2 (1-3) May be repeated for credit; cumulative maximum 4 hours. Clinical therapeutics; pharmacist role in providing better patient care</td>
</tr>
<tr>
<td>561P</td>
<td>Acute Care Clerkship 1 (0-3) 12(0-36) May be repeated for credit; cumulative maximum 12 hours. Prereq PharP 552, 557. Advanced clinical pharmacy clerkship experience in the delivery of health care; pharmacist role in providing acute pharmaceutical care</td>
</tr>
<tr>
<td>562P</td>
<td>Ambulatory Care Clerkship 1 (0-3) 12(0-36) May be repeated for credit; cumulative maximum 12 hours. Prereq PharP 552, 557. Advanced clinical pharmacy clerkship experience in the delivery of health care; pharmacist role in providing ambulatory pharmaceutical care</td>
</tr>
<tr>
<td>563P</td>
<td>Long-Term Care Clerkship 1 (0-3) 20(0-60) May be repeated for credit; cumulative maximum 20 hours. Prereq PharP 552, 557. Advanced clinical pharmacy clerkship experience in the delivery of health care; pharmacist role in providing pharmaceutical care in various care settings</td>
</tr>
<tr>
<td>572P</td>
<td>(472) Pharmaceutical Care Laboratory I 1 (0-3) Prereq PharP 451 or c//. Practicum designed to integrate classroom-acquired knowledge, behaviors and values into professional skills</td>
</tr>
<tr>
<td>573P</td>
<td>(473) Pharmaceutical Care Laboratory II 1 (0-3) Prereq PharP 451 or c//. Practicum designed to integrate classroom-acquired knowledge, behaviors and values into professional skills</td>
</tr>
<tr>
<td>574P</td>
<td>(474) Pharmaceutical Care Laboratory III 2 (0-6) Prereq PharP 451 or c//. Basic clinical skills, interpretation of patient data, problems solving skills, professional communications, professionalism and pharmacy ethics</td>
</tr>
<tr>
<td>575P</td>
<td>(475) Pharmaceutical Care Laboratory IV 2 (0-6) Prereq PharP 451 or c//. Practicum designed to integrate classroom-acquired knowledge, behaviors and values into professional skills</td>
</tr>
<tr>
<td>576P</td>
<td>(476) Pharmaceutical Care Laboratory V 2 (0-6) Prereq PharP 451 or c//. Practicum designed to integrate classroom-acquired knowledge, behaviors and values into professional skills</td>
</tr>
</tbody>
</table>

### Health Policy and Administration Courses

**Description of Courses**

**Health Policy and Administration**

**HPA**

**455** The Economics of Health Care 3 Same as Econ 455.

**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 Prereq HPA 500. History, methods, results and evaluation of health-care-related policy and politics.

**502** Health Care Ethics 3 Ethical issues affecting health care institutions, professionals and patients.

**503** Research and Evaluation Methods 3 Prereq statistics. Basic research and evaluation methods for health care professionals.

**504** Strategic Management and Marketing 3 Prereq HPA 501, 502, 503. Key components and processes in strategic planning.

**505** Comparative International Health Care 3 Analysis of key attributes of health care in selected countries and comparisons with the US health care system.

**506** Rural Health Care in America 3 The unique characteristics, professional opportunities, problems and reform alternatives in rural health care.

**507** Health Care Finance 3 Prereq Acctg course. Aspects of health care financial management fundamentals and managerial accounting for strategic financial management.

**508** Managed Care/Integrated Delivery Systems 3 Prereq HPA 500, 507. Business, regulatory and liability issues in field of managed care.

**509** Health Care Information Systems 3 Prereq HPA 500. Key attributes of health care information systems and their evolution in health care environment.

**511** Health Care Law 3 Prereq HPA 500. Overview of the structure and function of the legal system and how it affects health care.

**512** Aging and Long-term Care Administration 3 Prereq HPA 500. Introduction to issues in population aging and requirements for administration of long-term care programs.

**513** Innovative Leadership and Management 3, 4 (3-3), or 5 (3-6). Same as Nurs 513.

**514** Women’s Health: Social, Psychological, and Physiological Issues 2 Contemporary issues in women’s health focusing on physiological, social and psychological aspects.
### Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

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

The first two years requirements are common to both philosophy degree programs:

#### FIRST AND SECOND YEAR REQUIREMENTS

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<td>Social Sciences [S,K] (GER)</td>
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<td>Tier I Science [Q] (GER)</td>
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**Sophomore Year**

<table>
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<td>Biological Sciences [B] (GER)</td>
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<td>Foreign Language, if necessary, or Elective</td>
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<table>
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<td>Physical Sciences [P] (GER)</td>
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**Third Year**

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<table>
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<td>Electives</td>
<td>9</td>
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</tbody>
</table>

**Senior Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Phil 400</td>
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<tr>
<td>Phil Electives</td>
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<tr>
<td>Electives</td>
<td>9</td>
</tr>
</tbody>
</table>

**TYPICAL PHILOSOPHY PROGRAM (120 HOURS)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phil 101</td>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Tier I Science [Q] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Philosophy**

- **Phil 101** (H) Introduction to Philosophy 3 Nature and place of philosophy in human thought; problems and achievements.
- **Phil 102** (W) Writing and Reasoning 3 Application of critical thinking skills to essay writing.
- **Phil 198** (H) Philosophy Honors 3
- **Phil 201** (H) Elementary Logic 3 Analysis and evaluation of deductive and non-deductive arguments.
- **Phil 207** (H) Philosophy of Religion 3 Western religious thought, nature and knowledge of God, relations to science, morality, and society.
- **Phil 220** (H) Aesthetics 3 Analysis of aesthetic experience; applications to art and nature; criteria of art criticism.
- **Phil 260** (H) Introduction to Ethics 3 Ethics through analysis of contemporary moral and social issues.
- **Phil 290** (H) History of Ancient and Medieval Philosophy 3 Pre-Socratics, Plato, Aristotle; post-Aristotelian philosophy to the Renaissance. Cooperative course taught jointly by WSU and UI (Phil 309).
- **Phil 305** (H) History of Modern Philosophy 3 Renaissance, 17th and 18th century philosophers. Cooperative course taught jointly by WSU and UI (Phil 310).
- **Phil 310** (H) Nineteenth-century Philosophy 3 Focus on the Continental tradition in philosophy.
- **Phil 314** (G) Philosophies and Religions of India 3 Prereq 3 hours Phil. Metaphysical, epistemological, ethical, aesthetic, social, and political views of Hinduism, Buddhism, and Islam, and their influence on Indian civilization.
- **Phil 315** (G) Philosophies and Religions of China and Japan 3 Prereq 3 hours Phil. The philosophies and religions of China and Japan, and their metaphysical, epistemological, ethical, social, and political positions and views of God and gods.
- **Phil 325** (M) 20th Century Philosophy 3 Prereq 3 hours Phil. Selected major philosophers and movements: pragmatism and analytic philosophy.
- **Phil 335** (M) Seminar in Theory of Knowledge 3 Prereq 3 hours Phil. Problems of immediate knowledge and mediate knowledge, modes of cognition. Cooperative course taught jointly by WSU and UI (Phil 431).
- **Phil 340** (M) Seminar in Metaphysics 3 Prereq 3 hours Phil. Theories of self, world, God, nature of being. Cooperative course taught jointly by WSU and UI (Phil 311).
470 Philosophy of Law 3 Prereq 3 hours Phil. Selected topics pertaining to moral and philosophical evaluation of law. Cooperative course taught by UI (Phil 410), open to WSU students.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

Physical Science Courses

Description of Courses

Physical Science


298 Physical Science Honors 4 (3-3) Concepts from cosmology, astronomy, physics, chemistry, and biochemistry; how matter evolved from the Big Bang to intelligent life forms.

430 Methods of Teaching Physical Science 3 (2-2) Prereq T & L 303; 12 hours science. Methods, philosophy, and structure of science; application in teaching middle/secondary school physical science courses.

Department of Physics


Physics is the study of nature at its most fundamental level. As such it is the science upon whose principles all other sciences and technologies are based. Because it is so basic, a major in physics is ideal preparation, not only for further study in physics, but also for advanced study in such diverse fields as biophysics, medicine, astrophysics, geophysics, chemical physics, engineering, meteorology, and computer science. These same areas also offer careers for the physics major.

Courses offered by the physics department are designed to introduce the student to each of the major physical theories. Additional undergraduate courses use these theories to investigate such topics as optics, atomic physics, nuclear physics, solid state physics, astrophysics, and geophysics. The student tests the theories in laboratories and learns some of the standard experimental techniques needed to work with modern apparatus such as computers, high-vacuum equipment, lasers, electronic and optical devices, and accelerators.

Active research programs, supported in part by federal grants and contracts, are being pursued in the following fields: acoustics (scattering, nonlinear processes, and levitation); astronomy (luminosity calibration, spectroscopy, statistics); optical properties of semiconductors; biophysics; clusters physics; optical physics (high-power femtosecond lasers, 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 correlations, positron annihilation studies); 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). These research groups offer graduate students the opportunity to pursue the original investigations required for advanced degrees. Undergraduate physics majors are encouraged to participate in research through the special problems course (Phys 409) 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 (Physics).

The Department of Physics is a major participant in the Program in Materials Science and offers courses and research opportunities leading to degrees in this interdisciplinary program.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

The Department of Physics has developed a variety of options for students seeking a major in physics. For most of these options, the first two years is the same. Differences in these will appear as footnotes. The program of courses below is appropriate for students who have had a good experience with calculus and wish to start physics in the first semester at WSU (even though the student may be placed in Math 171, if their high school grades for the year course were B or better they may follow this schedule of study). Students who have placed in Math 172 can accelerate the math sequence. Physics majors are encouraged to participate in research through the special problems course (Phys 409) and through part-time jobs that are sometimes available. Students who have placed in Math 172 can accelerate the math sequence. A student who has not had calculus in high school should defer Phys 201 to the spring semester or until they have completed Math 171. Upon consultation with the departmental advisor, modifications can be made in the list of required courses to fit the needs of individual students. Note that in all the programs that follow, the minors listed are possible if the student applies to the respective department before graduation. The minors are never automatically issued. In some degree programs, the course work is close to that required for a minor, but the student must negotiate with the relevant department to finalize that minor program. The degree programs are listed as possibly offering the minor.

A student may certify as a physics major after completing 30 credits (preferably including Phys 201 and Math 171) with a cumulative g.p.a. of 2.0 or better. Most of the research experience is required of all students as a 499 project; however, to gain valuable work experience outside the university, students are
strongly urged 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 student 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.

**FIRST AND SECOND YEAR REQUIREMENTS**

The first year requirements are common to all physics degree programs:

### Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Degree program course, if necessary(^1)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 171 [N] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Phys 201 or 205</td>
<td>4 or 5</td>
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</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 105 [P] (GER) or 115</td>
<td>4</td>
</tr>
<tr>
<td>Degree program course, if necessary(^1)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 172</td>
<td>4</td>
</tr>
<tr>
<td>Phys 202 or 206</td>
<td>4 or 5</td>
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### Sophomore Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Chem 106 [P] (GER) or 116</td>
<td>4</td>
</tr>
<tr>
<td>Degree program course, if necessary(^2)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Engl 402 [W] (GER)</td>
<td>3</td>
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<tr>
<td>Math 220</td>
<td>2</td>
</tr>
<tr>
<td>Math 273</td>
<td>2</td>
</tr>
<tr>
<td>Phys 303</td>
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</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>4</td>
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<tr>
<td>Cpt S 150</td>
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</tr>
<tr>
<td>Degree program course, if necessary(^2)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Math 315</td>
<td>3</td>
</tr>
<tr>
<td>Phys 304</td>
<td>3</td>
</tr>
<tr>
<td>Phys 330</td>
<td>3</td>
</tr>
</tbody>
</table>

\(^1\) Environmental: ES/RP 101; Physics Education: Psych 105 [S] (GER); Computer Physics: Cpt S 150, 250.  
\(^2\) Astrophysics: Phys 345; Biophysics, Environmental Option: Bio S 103, 104; Computer Physics, Optics and Electronics, Technical Option: E E 214; Physics Education: ScPCom 102, T & L 300.

### THIRD AND FOURTH YEAR REQUIREMENTS

Consult the Physics Department to determine when classes should be taken:

### Standard Four-Year Degree Agreement Program

This program yields a Bachelor of Science in Physics Degree with a minor in Mathematics.

| Arts & Humanities [H,G] or Social Sciences [S,K] (GER) (6 hours); Intercultural [I,G,K] (GER); Social Sciences [S,K] (GER);Tier III Capstone [H,G,S,K] (GER); Math Electives (6 hours)\(^3\); Phys 320, 341, 342, 410, 415 [M], 450, 463, 465, 490 [M], 499; any 400-level Math or Phys course. |  |

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### Standard Program

This program yields a Bachelor of Science in Physics Degree with a minor in Mathematics.

**Arts & Humanities [H,G] or Social Sciences [S,K]** (GER) (6 hours); Intercultural [I,G,K] (GER); Social Sciences [S,K] (GER); Tier III Capstone [H,G,S,K] (GER); Math Electives (6 hours); Phys 320, 341, 410, 415 [M], 443, 450, 461, 463, 465, 490 [M], 499; any 400-level Math or Phys course.

### Astrophysics Program

This program yields a Bachelor of Science in Physics Degree with a minor in Mathematics and Astronomy.

**Arts & Humanities [H,G] or Social Sciences [S,K]** (GER) (6 hours); Intercultural [I,G,K] (GER); Social Sciences [S,K] (GER); Tier III Capstone [H,G,S,K] (GER); Math Electives (6 hours); Phys 320, 341, 342, 410, 412, 415 [M], 435, 443, 450, 461, 463, 490 [M].

### Biophysics Program

This program yields a Bachelor of Science in Physics Degree with a minor in Mathematics and possibly Biochemistry.

**Arts & Humanities [H,G] or Social Sciences [S,K]** (GER) (6 hours); Intercultural [I,G,K] (GER); Social Sciences [S,K] (GER); Tier III Capstone [H,G,S,K] (GER); BC/BS 364, 463, 472, 482, 499 (1 hour); Math Elective (3 hours); Organic Chemistry; Phys 320, 342, 410, 415 [M], 450, 461, 463, 490 [M].

### Computer Physics Program

This program yields a Bachelor of Science in Physics Degree with a minor in Mathematics and possibly in Computer Science.

**Arts & Humanities [H,G] or Social Sciences [S,K]** (GER) (6 hours); Intercultural [I,G,K] (GER); Social Sciences [S,K] (GER); Tier III Capstone [H,G,S,K] (GER); Cpt S 330 (4 hours), 360, 400-level electives (6 hours), 499; E E 314; Math 216, Math Electives (6 hours); Phys 320, 341, 342, 410, 415 [M], 450, 463, 490 [M].

### Continuum Physics and Acoustics Program

This program yields a Bachelor of Science in Physics Degree with a minor in Mathematics.

**Arts & Humanities [H,G] or Social Sciences [S,K]** (GER) (6 hours); Intercultural [I,G,K] (GER); Social Sciences [S,K] (GER); Tier III Capstone [H,G,S,K] (GER); EE 418; ME 303, 413, 422, 499; Math Electives (6 hours); Phys 320, 341, 410, 415 [M], 450, 463, 490 [M].

### Environmental Physics Program

This program yields a Bachelor of Science in Physics Degree with a minor in Mathematics.

**Arts & Humanities [H,G] or Social Sciences [S,K]** (GER) (6 hours); Intercultural [I,G,K] (GER); Social Sciences [S,K] (GER); Tier III Capstone [H,G,S,K] (GER); EE 418; ME 303, 413, 422, 499; Math Electives (6 hours); Phys 320, 341, 342, 410, 415 [M], 450, 463, 490 [M].

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1. Approved choices include: MATH 340, 360, 375, 401, 402, 415, 420, 440, 441, 443, 448. (Underlined entries are recommended.)
2. One hour of 499 in an appropriate department or Physics required. Additional hours may be taken for credit.

### Minor in Physics

A physics minor requires Phys 201, 202 and Phys 303, 304 plus any two courses (6 credits) from the following list: Phys 320, 330, 341, 342, 410, 412, 415, 443, 450, 463, 465. This makes a total of 20 credits in
204 Problem Solving for Physics 204
1 Prereq
4 (3-3) Prereq Math 172, Phys 201 or 205. Calculus-based physics, honors section; mechanics, sound, and thermodynamics.


206 [P] Physics for Scientists and Engineers II - Honors 5 (3-4) Prereq Math 172, Phys 201 or 205. Calculus-based physics, honors section; electricity, magnetism, light, topics in modern physics.

303 Modern Physics 1 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-dimensions; motions of 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.

342 Electricity and Magnetism II 3 Continuation of Phys 341. Maxwell’s equations; electromagnetic waves, special relativity.

345 [P] Principles of Astronomy 3 Same as Astr 345.


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.

385 Environmental Physics 3 Prereq Math 171; Phys 101 or 201; 102 or 202. Basic physics concepts applied to environmental problems engendered by technology; physical understanding of the earth, resources; environmental changes; predations.

410 Electronics 3 (1-6) Prereq Phys 102 or 202. Laboratory construction and investigation of electronic circuits employed in research instruments.

412 Modern Optics Laboratory 3 (2-3) Prereq Phys 443 or c//. Fundamentals of experimental modern optics and applications in science and engineering.


435 Astronomy and Astrophysics 3 May be repeated for credit; cumulative maximum 6 hours. Same as Astr 435.

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.

463 Introduction to Solid State Physics 3 Prereq Phys 304. Introduction to the physics of solids; crystal structures, lattice vibrations, and electron theory. Cooperative course taught jointly by WSU and UI (Phys 463).


490 [M] Undergraduate Thesis 1 Preliminary thesis draft of a laboratory or library research experience, oral presentation, and final draft.

499 Special Problems 1 V 1-4 May be repeated for credit. S, F grading.

521 Classical Mechanics I 3 Prereq Phys 320; 571 or c//. Laws of motion as developed by Newton, d’Alembert, Lagrange, and Hamilton; dynamics of particles and rigid bodies. Cooperative course taught jointly by WSU and UI (Phys 521).


533 Thermodynamics 3 Prereq Math 440: Phys 330. Entropy, equilibrium, and stability; work, reversible processes, phase transitions and critical phenomena; irreversible processes and applications; introduction to statistical mechanics. Cooperative course taught jointly by WSU and UI (Phys 533).

538 Topics in Modern Astrophysics 3 May be repeated for credit; cumulative maximum 9 hours. Same as Astr 538.

541 Electromagnetic Theory 3 Prereq Phys 342, 571 or c//. Special relativity and the classical electromagnetic field; emission, propagation, and absorption of electromagnetic waves. Cooperative course taught jointly by WSU and UI (Phys 541).

542 Electrodynamics 3 Prereq Phys 541. Interaction of matter and electromagnetic radiation; classical and quantum electrodynamics. Cooperative course taught jointly by WSU and UI (Phys 542).

545 Nonlinear Optics 3 Prereq Phys 534, 542, 551. Nonlinear wave propagation theory applied to several nonlinear-optical phenomena; experimental techniques that probe a material’s nonlinearity.

546 Quantum Electronics 3 Prereq Phys 541, 551 or c//. The physics of lasers and of coherent optical radiation generation and propagation.

550 Quantum Theory I 3 Prereq Math 440, 441; Phys 450. Introduction to quantum theory; physical and mathematical foundations; application to atomic systems. Cooperative course taught jointly by WSU and UI (Phys 551).

551 Quantum Theory II 3 Prereq Phys 550, 571. Symmetry and invariance; angular momentum theory; approximation methods. Cooperative course taught jointly by WSU and UI (Phys 552).

552 Quantum Theory III 3 Prereq Phys 551. Scattering theory; relativistic wave mechanics; quantum field theory. Cooperative course taught jointly by WSU and UI (Phys 553).

563 Physics of the Solid State 3 Prereq Phys 534, 551. Lattice vibrations and defects; ionic and electronic conductivities; band theory; magnetic properties; luminescence. Cooperative course taught jointly by WSU and UI (Phys 563).

565 Nuclear Physics 3 Prereq Phys 465, 551. Nuclear theory and nuclear interactions from theoretical and experimental viewpoint, properties of nuclei, two-body problems, complex nuclei, nuclear spectroscopy, reactions, models. Cooperative course taught jointly by WSU and UI (Phys 565).

571 Methods of Theoretical Physics 3 Prereq Math 440, 441. Mathematical methods for theoretical physics; linear algebra, tensor analysis, complex variables. Differential equations, integral equations, variational calculus, and group theory. Cooperative course taught jointly by WSU and UI (Phys 571).

573 Physical Applications of Group Theory 3 Prereq Phys 551. Introduction to group theory with application to atoms, molecules, solids, and elementary particles; no previous knowledge of group theory assumed. Cooperative course taught by UI (Phys 573), open to WSU students.

575 Advanced Solid State Physics 3 Prereq Phys 534, 542, 552 or c/f, 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.

591 Seminar in Computational Physics 1 May be repeated for credit; cumulative maximum 4 hours. Computational physics; numerical methods and physical application to supercomputers, mainframes, minis, and microcomputers. S, F grading.

592 Wave Propagation Seminar 2 Prereq Math 440, 441. May be repeated for credit; cumulative maximum 4 hours. Waves in the continuum; elastic, plastic, and hydrodynamic waves; shock waves. S, F grading.

593 Seminar in Physics of Condensed Matter 1 May be repeated for credit; cumulative maximum 2 hours. Experimental and theoretical methods of study of matter in the condensed state and at interfaces. S, F grading.

594 Seminar in Solid-State Physics 1 May be repeated for credit; cumulative maximum 4 hours. Topics in the physics of solids; the experimental and theoretical study of the electronic and atomic structure of materials. S, F grading.

596 Seminar in Optical Physics 1 May be repeated for credit; cumulative maximum 3 hours. Current topics in experimental and theoretical aspects of optical physics. S, F grading.

598 Teaching Undergraduate Physics Laboratories 1 May be repeated for credit; cumulative maximum 4 hours. Principles and practices of teaching, planning and management of undergraduate physics laboratories; choice and care of equipment. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Department of Plant Pathology


Plant pathology is the study of plant diseases, including causes, economic consequences, epidemiology, and control. Opportunities for graduates in plant pathology include positions in research and development, teaching, extension, and sales. Plant pathologists are employed throughout the world by industries, governments, educational institutions, and private foundations.

A limited undergraduate program is designed to provide a broad background in the biological, physical, and agricultural sciences. However, most opportunities in plant pathology require advanced degrees. Students who intend to terminate university training with a baccalaureate degree are encouraged to enroll in the Integrated Pest Management curriculum.

The courses offered in this department are designed both to train students expecting to make plant pathology or mycology their professional field of specialization and to provide supplementary training for students in other biological and agricultural fields, particularly botany, crop science, genetics, horticulture, forestry, and entomology. Students who expect to become professional plant pathologists are advised to include in their undergraduate studies fundamental courses in bacteriology, botany, chemistry, genetics, physics, and zoology.

A professional career in plant pathology requires graduate training, and the four-year course outlined under the schedule of studies is basic for such later specialization. Students often enter advanced work in plant pathology following a major in biology, botany, crop science, genetics, horticulture, molecular biology, or similar areas as well as in plant pathology. Specialized areas of advanced study include mycology, nematology, virology, epidemiology, disease physiology, molecular biology of host-parasite relationships, ecology of disease development, chemistry of pathogenicity, disease resistance, chemical control, and biological control. Research is conducted on diseases of grain crops, forage crops, forest trees, fruit, vegetables, ornamentals, and turf.

The department offers courses of study leading to the degrees of Bachelor of Science in Agriculture, Master of Science in Plant Pathology, and Doctor of Philosophy.

An interdisciplinary curriculum in Integrated Pest Management is available to those whose interests span the areas of plant pathology and pest management. The curriculum is described under the Entomology section of this catalog.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

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

The following list includes the departmental requirements for the undergraduate plant pathology curriculum. Students should consult their advisors for appropriate sequencing of courses and in selecting electives consistent with vocational and professional objectives. They should also check fulfillment of University and General Education Requirements.

PLANT PATHOLOGY DEGREE PROGRAM (120 HOURS)

Freshman Year

First Semester
Bio S 103 [B] (GER) 4
Chem 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math 107 3

Second Semester
Bio S 104 [B] (GER) 4
Chem 106 [P] (GER) 4
GenEd 111 [A] (GER) 3
Math Proficiency [N] (GER) 3
Micro 101 [B] (GER) 4

Sophomore Year

First Semester
Bot 120 [B] (GER) 4
Chem 240 4
Phys 101 [P] (GER) 4
SoilS 201 3

Second Semester
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Bio S 372 4
Communication Proficiency [C,W] (GER) 3
Crops 510 3
Phys 102 [P] (GER) 4

Junior Year

First Semester
Bot 320 4
Crops 501 4
Hort 201 4
Social Sciences [S,K] (GER) 3
Complete Writing Portfolio

Second Semester
Ag Ec 201 3
Arts & Humanities [H,G] (GER) 3
Bot 332 4
Crops 305 3
Engl 351 3
Graduate study leading to degrees of Master of Science in Plant Physiology and Doctor of Philosophy is offered as an interdepartmental curriculum by the graduate faculty from the Departments of Crop and Soil Science, Biochemistry and Biophysics, Botany, Genetics and Cell Biology, Horticulture and Landscape Architecture, Plant Pathology, and the Institute of Biological Chemistry. The objectives of the program are to provide the graduate student with a broad knowledge in plant physiology 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 photoprotection, 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.

Note that most plant pathology courses are offered on an alternate year only basis.

**Plant Pathology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Prereq</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>514</td>
<td>Phytobacteriology 4 (3-3)</td>
<td>Prereq BC/BP 364; Micro 201. Isolation and characterization of bacteria having a saprophytic, symbiotic or pathogenic association with plants, molecular structure, function, and genetics. Cooperative course taught by WSU, open UI students (PlSc 511).</td>
<td>4</td>
</tr>
<tr>
<td>515</td>
<td>Seminar 1 May be repeated for credit.</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>521</td>
<td>General Mycology 4 (2-6) Graduate-level counterpart of PI P 421; additional requirements. Credit not granted for both Pl P 421 and 521.</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>522</td>
<td>Basidiomycetes 3 (2-3)</td>
<td>Prereq Pl P 421. Taxonomy, physiology, and reproduction of rusts, jelly fungi, smuts, and higher basidiomycetes. Cooperative course taught by WSU, open to UI students (Bot 577).</td>
<td>3</td>
</tr>
<tr>
<td>523</td>
<td>Ascomycetes and Fungi Imperfecti 3 (1-6)</td>
<td>Prereq Pl P 421. Taxonomy, phylogeny, physiology, reproduction of ascomycetes, and fungi imperfecti. Cooperative course taught by WSU, open to UI students (Bot 576).</td>
<td>3</td>
</tr>
<tr>
<td>524</td>
<td>Lower Fungi 2 (1-3)</td>
<td>Prereq Pl P 421. Taxonomy, phylogeny, physiology, and reproduction of aquatic and terrestrial phycymycetes and myxomycetes. Cooperative course taught by WSU, open to UI students (Bot 577).</td>
<td>2</td>
</tr>
<tr>
<td>525</td>
<td>Field Plant Pathology and Mycology 1 (0-3) or 2 (0-6)</td>
<td>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.</td>
<td>1-2</td>
</tr>
</tbody>
</table>

**Description of Courses**

Note that most plant pathology courses are offered on an alternate year only basis.

**Program in Plant Physiology**


The following substitutions may be allowed with departmental approval: Chem 101/102 for Chem 105/106; Entom 343 for Entom 340; H D 205 for Engl 351; Math 171 for Math 107; Micro 201 for Micro 101.

### Senior Year

#### First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Prereq</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>429</td>
<td>General Plant Pathology 3 (2-3)</td>
<td>Rec Bio S 103 or Bot 120. Concepts and terminology associated with the classification, symptoms, causes, development, and control of plant diseases associated with irrigated crop production.</td>
<td>3</td>
</tr>
<tr>
<td>331</td>
<td>Forest Pathology 2 (0-6)</td>
<td>Prereq Bio S 103. Parasitic and nonparasitic diseases of forest and shade trees; life histories of fungi as related to diseases.</td>
<td>2</td>
</tr>
<tr>
<td>360</td>
<td>Crop Plant Problem Diagnosis 1 (0-3)</td>
<td>May be repeated for credit; cumulative maximum 3 hours. Prereq Crop S 305, Entom 340, Hort 304, 350, PI P 309. Field assessment of crop plant problems; diagnosis of problems associated with crops growing in the Columbia Basin.</td>
<td>1</td>
</tr>
<tr>
<td>421</td>
<td>General Mycology 4 (2-6)</td>
<td>Rec Bio S 103 or Bot 120. The structure, life histories, classification, and economic importance of the fungi. Credit not granted for both Pl P 421 and 521.</td>
<td>4</td>
</tr>
<tr>
<td>429</td>
<td>General Plant Pathology 3 (2-3)</td>
<td>Rec Bio S 103 or Bot 120. Classification, symptoms, causes, epidemiology, and control of plant diseases. Credit not granted for both Pl P 429 and 529.</td>
<td>3</td>
</tr>
<tr>
<td>499</td>
<td>Special Problems V 1-4</td>
<td>May be repeated for credit. S, F grading.</td>
<td>1-4</td>
</tr>
</tbody>
</table>

### Preparation for Graduate Study

As preparation for work toward an advanced degree a student should have completed a bachelor’s degree; at least one year each of general inorganic chemistry, botany, zoology, physics, and a foreign language; one semester each of systematic botany, plant physiology, bacteriology, general plant pathology, entomology, precalculus, organic chemistry, genetics, and report writing or advanced composition.

**Program in Plant Physiology**


Graduate study leading to degrees of Master of Science in Plant Physiology and Doctor of Philosophy is offered as an interdepartmental curriculum by the graduate faculty from the Departments of Crop and Soil Science, Biochemistry and Biophysics, Botany, Genetics and Cell Biology, Horticulture and Landscape Architecture, Plant Pathology, and the Institute of Biological Chemistry. The objectives of the program are to provide the graduate student with a broad background in plant physiology 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 photoprotection, 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, one semester each of plant physiology and genetics, and mathematics (through calculus). Limited undergraduate deficiencies may be remedied by taking the appropriate courses upon enrollment in the graduate program on a provisional basis. Degree requirements for both the MS and PhD degrees include courses in advanced plant physiology, plant morphology and anatomy, and biochemistry. 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 plant physiology or to any participating academic unit. Should the latter route be followed, preference for the Program in Plant Physiology must be indicated and, if possible, the research area of interest identified.

The program offers flexibility for students with varied backgrounds in chemistry, biochemistry, plant physiology, molecular biology, botany, genetics, biology, and the agricultural sciences to pursue advanced training in plant physiology, 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 plant physiologists and 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.

Financial support for students in the program is determined within the administering academic unit and not by plant physiology. 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 cooperating departments and programs. In addition, a seminar is held weekly during each semester.
Description of Courses

Plant Physiology

PI PH

515 Seminar in Plant Physiology 1 May be repeated for credit; cumulative maximum 4 hours. A cross-discipline seminar, including botany, crop and soils sciences, horticulture, plant pathology, and plant physiology.

561 Biochemical Signaling 2 Same as BC/BP 561

570 Advanced Topics in Plant Physiology 1 May be repeated for credit; cumulative maximum 3 hours. Oral presentation of a current research paper.

587 Advanced Topics in Plant Biochemistry 2 Same as BC/BP 587.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master's Research, Dissertation and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation and/or Examination Variable credit. S, F grading.

Department of Political Science


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.

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.

Teaching

Students may obtain the bachelor’s degree in political science while meeting the requirements for a Washington teaching certificate. Further details can be obtained from the department.

Minor and Second Major

A minimum of 18 semester hours of political science coursework, 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 g.p.a. of 2.0 in the political science courses is required.

Preparation for Graduate Study

Students with some undergraduate coursework 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.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

At least 40 of the total hours required for the bachelor’s degree in these programs must be in 300-400-level courses.

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.

GENERAL POLITICAL SCIENCE DEGREE PROGRAM (123 HOURS) ∘FYDA

36 hours in Pol S, at least 15 of which must be earned at WSU required.

Freshman Year

First Semester  Hours  Arts & Humanities [H,G] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Pol S 101 [S] (GER) 3
Social Sciences [S,K] (GER) 3

Second Semester  Hours  Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Communication [C,W] (GER) 3
GenEd 111 [A] (GER) 3
Intercultural [L,G,K] (GER) 3
Pol S 102 [S] (GER) 3

Sophomore Year  Hours  Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Foreign Language, if necessary, or Elective 3 or 4
Math Proficiency [N] (GER) 3
Pol S 103 [S] (GER) 3
Science Elective 1
Tier I Science [Q] (GER) 3

Second Semester  Hours  Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Biological [B] Sciences (GER) 4
Foreign Language, if necessary, or Elective 3 or 4
Pol S Elective1 3
Pol S Elective2 3

Junior Year  Hours  300-400-level Arts & Humanities or Social Sciences Elective 3
300-400-level Pol S Elective [M] 3
Physical [P] Sciences (GER) 4
Pol S Elective1 6
Complete Writing Portfolio

Second Semester  Hours  300-400-level Arts & Humanities or Social Sciences Elective 3
300-400-level Pol S Elective [M] 3
Cpt S (GER) Stat Elective3 3
Engl 201 [W], 301 [W], or 402 [W] (GER) 3
Pol S Elective1 3

Senior Year  Hours  300-400-level Arts & Humanities or Social Sciences Elective 3
300-400-level Pol S Elective 3
300-400-level Electives 6

Second Semester  Hours  300-400-level Arts & Humanities or Social Sciences Elective 3
PRE-LAW DEGREE PROGRAM (120 HOURS)

24 hours in Pol S required. 21 of the 24 required hours of course work must be earned at WSU.

Freshman Year

First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>English Composition I</td>
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</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>General Education</td>
<td>3</td>
</tr>
<tr>
<td>Math Proficiency [N] (GER)</td>
<td>Math Proficiency</td>
<td>3</td>
</tr>
<tr>
<td>Pol S 101</td>
<td>Pol S Elective</td>
<td>3</td>
</tr>
<tr>
<td>Science Elective</td>
<td>Science Elective</td>
<td>1</td>
</tr>
<tr>
<td>Tier I Science [Q] (GER)</td>
<td>Tier I Science</td>
<td>3</td>
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Second Semester

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<th>Course Title</th>
<th>Hours</th>
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<tr>
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<tr>
<td>Biological Sciences [B] (GER)</td>
<td>Biological Sciences</td>
<td>4</td>
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<tr>
<td>Econ 101 [S] or 102 [S] (GER)</td>
<td>Economics</td>
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<td>GenEd 111 [A] (GER)</td>
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<td>Pol S 102</td>
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Sophomore Year

First Semester

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<tr>
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<td>Phil 201</td>
<td>Philosophy</td>
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<tr>
<td>Physical Sciences [P] (GER)</td>
<td>Physical Sciences</td>
<td>4</td>
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<tr>
<td>Pol S 103</td>
<td>Pol S Elective</td>
<td>3</td>
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<td>Elective</td>
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Second Semester

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<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>Arts &amp; Humanities or Social Sciences</td>
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<tr>
<td>Engl 201 or 301 [W] (GER)</td>
<td>English Composition II</td>
<td>3</td>
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<td>Pol S 300</td>
<td>Pol S Elective</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
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Junior Year

First Semester

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<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>Arts &amp; Humanities or Social Sciences</td>
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<tr>
<td>Pol S 402</td>
<td>Pol S Elective</td>
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</tr>
<tr>
<td>Crm J 320 or 420</td>
<td>Crm J Elective</td>
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<td>Elective</td>
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<tr>
<td>Complete Writing Portfolio</td>
<td>Complete Writing Portfolio</td>
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Second Semester

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<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tr>
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<td>Pol S 404 [M] (GER)</td>
<td>Pol S Elective</td>
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Senior Year

First Semester

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tr>
<td>Intercultural [L,G,K] (GER)</td>
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<td>Pol S 443</td>
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Second Semester

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Tier III Capstone (GER)</td>
<td>Tier III Capstone</td>
<td>3</td>
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<tr>
<td>Elective</td>
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</table>

3 Students may substitute one 4-credit Tier I Science for both the 3-credit Tier I Science and the 1-credit Science Elective.

TEACHER EDUCATION DEGREE PROGRAM (120 HOURS)

33 hours in Pol S required. Students in this option must also add education as a second major, preferably during their sophomore year, and must meet the specific requirements for that major as established by the College of Education.

Freshman Year

First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>General Education</td>
<td>3</td>
</tr>
<tr>
<td>Math Proficiency [N] (GER)</td>
<td>Math Proficiency</td>
<td>3</td>
</tr>
<tr>
<td>Pol S 101</td>
<td>Pol S Elective</td>
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</tr>
<tr>
<td>Science Elective</td>
<td>Science Elective</td>
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</tr>
<tr>
<td>Tier I Science [Q] (GER)</td>
<td>Tier I Science</td>
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Second Semester

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>Arts &amp; Humanities</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>Pol S 102</td>
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<td>Pol S 206</td>
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Sophomore Year

First Semester

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<th>Course Code</th>
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<tr>
<td>Hist 101 [H] (GER)</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>Pol S 300</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
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Second Semester

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<tr>
<th>Course Code</th>
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<tr>
<td>Engl 201, 301, 402 [W] (GER)</td>
<td>English Composition II</td>
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<tr>
<td>Hist 102 [H] (GER)</td>
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<tr>
<td>Hist 110 [S] (GER)</td>
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<td>Pol S 420</td>
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Junior Year

First Semester

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>Hist 111 [S] (GER)</td>
<td>History</td>
<td>3</td>
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<tr>
<td>One from: Hist 230 [K], 231 [K], 270 [K], 272 [II], 273 [G], 275 [K]</td>
<td>History</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>Pol S [M] Course Elective</td>
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Second Semester

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<tr>
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<tr>
<td>Hist 422</td>
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<td>Hist 480</td>
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<td>Pol S 438 [M]</td>
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Senior Year

First Semester

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<tr>
<td>300-400-level Hist Elective</td>
<td>History Elective</td>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>Arts &amp; Humanities or Social Sciences</td>
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Second Semester

<table>
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<tr>
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<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Pol S Elective</td>
<td>Pol S Elective</td>
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<tr>
<td>Tier III Capstone (GER)</td>
<td>Tier III Capstone</td>
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</tr>
<tr>
<td>Electives</td>
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<td>6-9</td>
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</tbody>
</table>

1 Students may substitute one 4-credit Tier I Science for both the 3-credit Tier I Science and the 1-credit Science Elective.

4 Recommended

1 American Politics, see department
2 Comparative or International Relations, see department
3 Policy and Public Administration, see department
4 Recommended

1 Open only to students in the Honors Program.

Scope of Courses

Pol S

102 [S] Introduction to Comparative Politics 3
Nature of the state; fundamental problems of government and politics; ideological and institutional comparison of democracies and dictatorships.

103 [S] International Politics 3 Creation and operation of national, international, and supranational communities; major world problems since 1945.

198 [S] Political Science Honors 3

206 State and Local Government 3 Institutions, processes, and problems, with special reference to the state of Washington.

300 The American Constitution 3 Prereq Pol S 101. Constitutional principles as established by the Supreme Court and related political developments.

301 Political Simulations 3 Prereq Pol S 101. Preparation for and participation in political simulations.

305 [S] Gender and Politics 3 Role of gender in political behavior; voting and political participation; women as subjects and objects of political systems.

314 National States and Global Challenges 3 Comprehensive introduction to the processes of the economic and political integration of the European Union.

315 Topics in Canadian Studies 1 Same as Hist 315.

316 American Public Policy 3 Institutions, processes, and substantive issues of American public policy and policy formation.

317 Mass Media and the Political Process 3 Relationship between the media and American political institutions and the public.

324 [I] Black Politics 3 Political culture, roles, and strategies of Black people in the United States; impact upon public policy.

330 Women and the Law 3 Same as W St 330.

333 [S] Development of Marxist Thought 3 Marxist theory from the original writing of Marx and Engels to contemporary developments.

340 Introduction to Public Administration 3 Prereq Pol S 101. Basic theories of administrative organization, relationships, and behavior.

375 Chicano/Latino Politics 3 Same as CAC 359.

381 Justice, Law, and the Media 3 (2-2) Same as Crm J 381.

401 Topics—Study Abroad 3

402 Civil Liberties 3 Prereq Pol S 101. Origin and development of civil liberties; responsibility of the branches of government and the people for their maintenance.

403 Topics—Study Abroad 3

Department of Political Science

216

405 [M] Comparative Criminal Justice Systems 3 Same as Crm J 405.

406 Topics—Study Abroad 3

408 Topics—Study Abroad 3

409 Topics—Study Abroad 3

411 Topics—Study Abroad 3


413 Latin American Governments 3 Institutions and political processes of selected Latin American republics.

415 Topics—Study Abroad 3

416 Policy Analysis 3 Analysis of public policy formation, evaluation and implementation.

417 The Electorate 3 Measurement and interpretation of electoral behavior; factors influencing the electorate; voter competence; representation of the electorate.

418 Human Issues in International Development 3 Same as Anth 418. Cooperative course taught by WSU, open to UI students (PolSc 462).

420 Political Parties and Pressure Groups 3 Theories of parties; characteristics of American parties; organization and behavior of pressure groups.


427 [M] United States Foreign Relations 3 Ends and means in foreign policy; organization, management, control, and current policy issues.

428 Introduction to Political Psychology 3 Prereq Pol S 101 or Psych 105. Introduction to the ways in which psychological factors influence political phenomena.

430 Politics of Natural Resource and Environmental Policy 3 Issues and problems of natural resource and environmental policy.

432 Comparative Public Policy 3 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 3 Issues and problems of political development and modernization common among developing nations. Cooperative course taught by WSU, open to UI students (PolSc 501).


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.

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 (PolSc 445).

446 Public Budgeting 3 The government budget as an instrument of politics, planning and control; organizing for democratic accountability.

447 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 The Legislative Process 3 Role of legislatures in a democratic system; problems of representation; election and tenure of lawmakers; legislative organization and procedures.

453 The Presidency 3 Organization and processes of executive institutions at the national level; uses and limits of executive power.

456 Political Leadership 3 An analysis of political leadership, including different conceptions of leadership, recruitment, leader-follower relations, tactics, and evaluation of leaders.

460 [M] Politics of the Third World 3 Issues and problems of political development and international relations common among developing nations.

472 [M] Politics of Postindustrialized Nations 3 Government and politics of postindustrial societies, including West Europe and Japan.

474 [K] [M] African Politics 3 Same as CAC 439.

476 Revolutionary China: 1800 to Present 3 Same as Hist 476.

496 Computer-aided Research in Political Science 2 Mainframe and microcomputer applications for political science research; practical applications. S, F grading.

497 Political Science Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. Prereq Pol S 101 or 206; by interview only. Participation as intern in federal, state, or local governmental unit or nonprofit/public organization. S, F grading.

498 Cooperative Education Internship V 2-12 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 1-4 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 WSU, open to UI students (PolSc 530).

502 Seminar in Normative Theory 3 Elements of normative theory; development; examination of bases of controversies and approaches in the modern literature using historical sources.

503 Introduction to Political Science Research Methods 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.

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 4

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 what is the nature of public policy, what is policy analysis, why does government intervene in society?

515 Governmental Policy and Program Analysis 3 Techniques used to analyze policy alternatives and to evaluate programs; developing program objectives, management by objectives, productivity analysis, program evaluation, and policy analysis. Cooperative course taught by UI (PolSc 556), open to UI students (PolSc 557).

530 Seminar in Theoretical Approaches to International Relations 3 Group dynamics, systems analysis, decision making, communication models, game theory, simulations, and rationality models. Cooperative course taught by WSU; open to UI students (PolSc 561).

532 Seminar in International Political Economy 3 Institutions, politics, and decision-making processes in managing international economic relations.

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 May be repeated for credit; cumulative maximum 6 hours. Cooperative course taught jointly by WSU and UI (PolSc 595).

535 Advanced Issues in Comparative Politics 3 Advanced issues seminar in international and comparative politics.

536 Special Topics in Comparative Politics 3 May be repeated for credit. Advanced issues seminar in international and comparative politics.

537 Concepts and Methods in Comparative Politics 3 Selected concepts (state, political participation, and methods (cross-national analysis, case study approaches) in comparative politics.

538 International Development and Human Resources 3 Same as Anth 519.

539 The Political Science Profession 1 Methods, problems, and purposes of teaching, research, and vocation in political science. S, F grading.

540 Proseminar in Public Administration 3 Proseminar overviewing basic theories of administrative organization, relationships, and behavior.

541 Seminar in Research Evaluation 3 Same as Crm J 540.
452 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 (PolSci 592).

454 Topics in Public Administration and Policy 3 Prereq graduate standing. Examination of the literature on the politics of the American public policy process.

454 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.

457 Seminar in Public Administration 3 Cooperative course taught by WSU, open to UI students (PolSci 501).

552 Administrative Law and Regulation 3 Rule-making, adjudication, and other modes of regulation of administrative agencies; judicial review and Congressional oversight of administrative acts. Cooperative course taught by UI (PolSci 552), open to WSU students.

597 Graduate Internship V 2 (0-6) - 12 (0-36) May be repeated for credit; cumulative maximum 12 hours. Prereq Crm J or Pol S graduate student. Internship in federal, state, or local government unit. S, F grading.

599 Research Practicum V 1-3 May be repeated for credit; cumulative maximum 6 hours. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Predental Curriculum

Associate Professor and Coordinator, D. F. Moffett.

Preparation for dental school requires a minimum of two years of college work; however, only a few exceptional students are accepted with the abbreviated background. Three years of college training are strongly recommended and, where possible, the baccalaureate degree should be secured before attending a professional school. This is the strongly preferred alternative.

The following constitutes the minimum requirements:

1. One year (6 semester hours) of college English.
2. One year of college physics with lab.
3. One year of inorganic chemistry with lab.
4. One year of organic chemistry with lab.
5. Mathematics through calculus.
6. One year of college biology. BC/BP 364 and GenCB 301 are strongly recommended.
7. 21 or more hours of electives in the social sciences and humanities.

In addition, all premedical students must take the Medical College Admissions Test (MCAT).

Premedical students are strongly urged to include in their studies a good selection of non-science courses (e.g., history, English, philosophy, humanities, anthropology, foreign languages) of their own preference and choosing. Medical schools neither place restrictions on major area of interest nor encourage taking courses which overlap in subject matter with those in medical school.

Acceptance of a student by a medical school is contingent on the satisfactory completion of at least the minimum entrance requirements of that school, attainment of a superior scholastic record, good to excellent scores on the MCAT, and possession of personal qualifications appropriate to success in the medical profession. Most schools require applicants to appear for a personal interview. In addition, letters of recommendation from several college teachers or a single composite letter written by the coordinator must strongly support the applicant. The latter is preferable.

Many medical schools welcome applications from students who have majors, or who have taken considerable work, in such diverse areas as humanities, mathematics, psychology, sociology, physics, chemistry, biochemistry, and engineering. Adequate latitude exists in the medical schools' requirements so that the advisor usually is able to suggest a schedule of studies to meet the needs of the individual students. Medical schools also expect a good selection of nonscience courses on the student's transcript.

Additional information can be obtained from D. F. Moffett, Associate Professor and Coordinator, Predental Curriculum, Washington State University, 236 Morrill Hall, Pullman, WA 99164-3524.

Department of Psychology


The bachelor's degree program provides for either a major or a minor in psychology. The program for majors is designed for those who wish to study psychology as part of a liberal education; for those who plan to use their training in related vocations such as the professions, governmental organizations, business and industry, and psychological services; and for those who are preparing for graduate work in psychology. Course offerings are open to students in other departments who need a background in those aspects of psychology which are related to their respective fields. Also, it is possible to combine a major in psychology with the certificate program in alcohol studies or with a minor in alcohol studies.

Alcohol studies offers an interdisciplinary sequence of courses designed to provide a broad knowledge concerning the etiology, development, treatment, and prevention of alcohol addiction and abuse. Students work on a baccalaureate degree of their choice while also completing the requirements for either the minor or the certificate in alcohol studies.

Upon completion of the academic requirements, students pursuing the certificate in alcohol studies must complete an internship in a state-approved alcoholism treatment facility (a potential job setting). The internship provides an opportunity for integration and application of knowledge, and acquisition and honing of skills necessary for effective assessment, intervention, and prevention of alcohol addiction and abuse.

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.

The department offers courses of study leading to the degrees of Bachelor of Science in Psychology, Master of Science in Psychology, and Doctor of Philosophy.

Excellent facilities are available for instruction and research in psychology. There are specially designed facilities for research in learning, memory, sensory processes, perception, animal behavior, physiological psychology, social interaction, and behavior modification. Departmental facilities also include the Psychology Clinic, which is a training clinic. In addition, cooperative arrangements with other units of the university and with outside agencies and institutions make it possible for students to gain first-hand experience in research and professional work. The university maintains a comprehensive library of books and journals in psychology and related fields.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.
At least 40 of the total hours required for the bachelor’s degree in this program must be in 300-400-level courses.

Beyond certain minimum requirements, there is flexibility in the major (and minor) program, in accordance with the needs of the individual student. A person may certify as a major after completion of 30 semester hours, math requirement with a C or better, and a cumulative g.p.a. of 2.5 or better. Students who are considering a psychology degree should, as early as possible in their academic careers, seek consultation with a faculty advisor in the Department of Psychology for assistance in planning their individual programs.

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.

PSYCHOLOGY DEGREE PROGRAM (120 HOURS)

Freshman Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Bio S 102 [B] or 103 [B] (GER)</td>
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</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural [L,G,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Psych 105 [S] (GER) or 198</td>
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Second Semester

<table>
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<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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</tr>
<tr>
<td>Communication [C,W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 140 [N], 171 [N], or 210 [N] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
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Sophomore Year

First Semester

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<td>Arts &amp; Humanities [H,G] or</td>
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</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Physical Sciences [P] (GER)</td>
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<tr>
<td>Psych 311</td>
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Second Semester

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<th>Course</th>
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<td>Arts &amp; Humanities [H,G] or</td>
<td></td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
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<tr>
<td>Biological [B] or Physical [P] Sciences</td>
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<td>Psych 312 [M]</td>
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Junior Year

First Semester

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<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Group I Psych Elective</td>
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</tr>
<tr>
<td>Group II Psych Elective</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
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<tr>
<td>Complete Writing Portfolio</td>
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Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Group I Psych Elective</td>
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</tr>
<tr>
<td>Group II Psych Elective</td>
<td>3</td>
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<tr>
<td>300-400-level Non-Psych Electives</td>
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Senior Year

First Semester

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<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
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<tr>
<td>Psych Elective</td>
<td>3</td>
</tr>
<tr>
<td>Tier III Capstone [H,G,S,K] (GER)</td>
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<tr>
<td>300-400-level Non-Psych Electives</td>
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Second Semester

<table>
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<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Non-Psych Electives</td>
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<tr>
<td>Psych Electives</td>
<td>1-4</td>
</tr>
</tbody>
</table>

1 Fulfills GER and department math requirement. Must be completed with C or better.
2 Please note that if you take only 3 credits of science elective, you will need to take another 1-credit science elective (i.e. Bio S 201).
3 The Psych courses listed above under Groups I and II are recommended for that semester. Some are only offered in the fall or the spring.
5 Completion of the minor in alcohol studies.

Preparation for Graduate Study

Students who contemplate work leading to advanced degrees are urged to confer as early as possible with a psychology faculty advisor. Graduate programs in psychology require a solid background in mathematics, natural sciences, physics, philosophy, and social sciences as well as appropriate preparation in psychology itself.

Description of Courses

Psychology

Psych

105 [S] Introductory Psychology 3 Contemporary psychology; biological, social, and physical influences on normal and abnormal human behavior.

106 Psychology Applied to Daily Living: Dealing with Friends, Alcohol, and Sex 1 Prereq Psych 105 or //. Application of psychological procedures to the problems of group living, alcohol use, sexual decision making and related social issues.

198 [S] Psychology Honors 3 May substitute for Psych 105 as a prereq to later courses.1

205 Psychology and Everyday Questions 3 Prereq Psych 105. Scientific analysis of everyday questions; topics from Psych 105 will be re-examined for their implications for practical solutions.

220 Psychology of Stress 3 Prereq Psych 105. Causes and characteristics of stress; stress prevention and management; psychological aspects of health and illness.

230 Human Sexuality 3 Prereq Psych 105. Sexuality in personal development; personal, cultural, biological influences on sexual identification and behavior; fertility, reproduction, sexual functioning, sexuality and personality.

265 Biopsychological Effects of Alcohol and Other Drugs 3 Prereq Bio S 102 or 103; Psych 105. 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. Prereq 6 hours Psych.

306 Industrial/Organizational Psychology 3 Prereq Psych 105. Individual and group goals; organizational structure and theory; leadership, design of jobs; personnel selection and training; engineering psychology.

307 Human Factors 3 Prereq Psych 105 or engr major. Human limitations and capabilities in architectural and engineering design; system analysis.

310 Pseudoscience and Human Behavior 3 Prereq Psych 105. Evaluation of scientific claims in the behavioral sciences and everyday life.

311 Elementary Statistics in Psychology 1 Prereq Math 101, 107, 140, 171, 201, 202, 210, or 222 with a 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; Psych 311 or Stat course. Designing, conducting, and reporting research in selected areas of experimental psychology.

*Open only to students in the Honors Program.*
321 Introduction to Personality 3 Prereq Psych 105. Theories, concepts, methods, discoveries in psychology of personality.
324 [S] Psychology of Women 3 Prereq Psych 105. Socialization and sex roles of women; a psychological perspective.
328 [M] Self Control 3 Prereq Psych 105. Analysis of self-control problems; application of behavioral principles to student-conducted projects.
333 Abnormal Psychology 3 Prereq Psych 321; 6 hours Psych. Problems of abnormality from traditional and evolving points of view; types, therapies, outcomes, preventive techniques.
350 [S] Social Psychology 3 Prereq Psych 105 or Soc 101. Attitude changes, conformity, interpersonal relations, groups and social influences explored to give a coherent view of social psychology.
361 Principles of Development 3 Prereq Psych 105. Major theories of development; contribution of biological and environmental factors; relationship of these factors to child-rearing and social issues.
363 Psychology of Aging 3 Prereq Bio S course; Psych 105. Psychological processes of aging; changes in sensory motor, cognitive motivational, and personality characteristics; research methodologies for the study of aging.
365 Problems of Alcohol Addiction and Abuse 3 Prereq Psych 105 or Soc 101. Current theories of etiology and epidemiology of alcoholism and alcohol abuse; treatment and prevention.
366 Treatment Approaches in Alcohol Abuse/Alcoholism 3 Prereq Psych 365. Psychosocial, medical, pharmacological treatment modalities; criteria for assessment/diagnosis; treatment plan; case management; family involvement; different support systems; aftercare plans.
372 [B] Introduction to Physiological Psychology 3 Prereq Bio S 102 or 103; Psych 105. Functional relationship between nervous system and behavior; integrated organ systems, sensory processes, and investigative procedures.
384 Psychology of Perception 3 Prereq Psych 105. Perception of size, depth, form, shape; illusions, contrast; historical and modern theories and research; applications and demonstrations.
403 Cultural Issues in Psychology 3 Same as CAC 403.
412 Psychological Testing and Measurement 3 Prereq Psych 311. Assessment of behavioral variables in humans; individual differences. Cooperative course taught by WSU, open to UI students (Psych 412).
440 [M] Clinical/Community Psychology 3 Prereq Psych 333. Professional problems; theory, training, relations with clients, institutions, public.
441 Basic Helping Skills 2 (0-6) Prereq 6 hours Psych; sophomore standing. By interview only. 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; sophomore standing. By interview only. Supervised experience in local and county agencies; application of psychological principles to paraprofessional counseling. S, F grading.
455 [S] Human Values 3 Same as Soc 455.
466 Environmental Psychology 3 Prereq Psych 105. Psychological concepts applied to the mixture of positive and negative interactions individuals have with their physical environment.
470 Motivation 3 Prereq Psych 105. Different motivational systems; analysis of environmental and biological factors influencing motivation, with emphasis on human motivation.
490 Cognition and Memory 3 Prereq 6 hours Psych. Human information processing, memory, and cognition.
492 [S] Psychology of Language 3 Prereq Psych 105; completion of one Tier I and three Tier II courses in appropriate area of coherence. The cognitive and neuropsychological processes involved in the acquisition and use of language; cross-cultural perspectives on language and thought.
496 Cooperative Education Internship V 2-6 May be repeated for credit; cumulative maximum 12 hours. Off-campus cooperative education internship with business, industry, or government unit coordinated through the Professional Experience Program. S, F grading.
497 Instructional Practicum V 1-4 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 9 hours Psych including a lab course. By interview only. Participation in the current research of departmental faculty. S, F grading.
499 Special Problems V 1-4 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 Research 3 Theoretical and scientific examination 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.
507 Topics in Psychology 3 May be repeated for credit.
508 Special Topics in Psychology V 1-3 May be repeated for credit.
511 Analysis of Variance and Experimental Design 3 Prereq Psych 311. 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.
520 Empirical Approaches to Psychotherapy 3 Major therapy systems, research on process and outcome of therapy.
521 Behavior Modification 3 (2-3) Prereq Psych 390, 520. Learning principles applied to modifying behavior of children and adults in institutions, clinics, and schools.
522 Applied Behavioral Research 3 Research theory and methodology on development of applied programs.
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 Psychopathology 3 Theoretical and empirical approaches to diagnosis, etiology and treatment of mental disorders. Cooperative course taught by WSU, open to UI students (Psych 575).
534 Clinical Psychopharmacology 3 Prereq Psych 533, 574. 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 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.
539 Measurement Theory and Intellectual Assessment 3 Psychometric theory, theories of intelligence, methods of appraising intelligence in children and adults, and development of testing and interpretive skills.
540 Group Psychotherapy 3 By interview only. Psychotherapists in the context of the group.
542 Community Psychology 3 Examination of community and its effects on health and behavior; organization of community-based mental health services.
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 (Psych 544).
545 Psychology Clinic Practicum 3 (0-9) May be repeated for credit; cumulative maximum 18 hours. Prereq Psych 520, 530, 535, 536, 539, or c//. By interview only. Supervised practice in the clinical application of psychology with children and adults in the Psychology Clinic. S, F grading.

546 Counseling Service Practicum V 1-3 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. Supervised practice in the clinical application of psychology at the WSU Health and Wellness Service. S, F grading.

548 Behavioral Medicine Practicum 3 May be repeated for credit; cumulative maximum 18 hours. Supervised practice in the clinical application of psychology at the Sacred Heart Medical Center and St. Luke’s Rehabilitation Center. S, F grading.

549 Seminar in Clinical Psychology 3 May be repeated for credit. Advanced current topics in clinical psychology.

550 Attitudes and Social Cognition 3 Theories, findings, and methods in group processes, interpersonal attraction, and personal perception. Cooperative course taught by WSU, open to UI students (Psych 520).

551 Interpersonal Dynamics 3 Theories and research in interpersonal dynamics; cognitive, learning, equity, and attributional concepts.

552 Diversity Issues in Psychology 3 Research, theories, and controversies regarding the role of human diversity in psychotherapy, psychological assessment, and clinical research.

553 Theories of Personality 3 Classical (e.g., psychoanalytic, ego psychology) and contemporary (e.g., object relations social learning, psychodynamic behavioralism) views of personality development.

554 Physiological Psychology 3 May be repeated for credit. Neuroanatomical, biochemical, and other biological cases of human and animal behavior.

555 Foundations of Neuropsychology 3 Foundations in brain/behavior relationships and neuropsychological syndromes; preparation for advanced training in neuropsychological assessment.

556 Neuropsychological Assessment 3 Prereq Psych 574 and 575. Brain-behavior relationships in humans and the evaluation of cognitive, behavioral, and emotional changes accompanying a variety of neuropsychiatric syndromes.

557 Behavioral Pharmacology 3 Prereq Psych 574. Survey of drugs which affect brain function with emphasis on animal models and clinical applications.

559 Behavioral Neuroscience 3 Prereq Psych 574. Advanced topics in neuroscience, neurophysiology, and neuroanatomy.

561 Sensory Bases of Behavior 3 Prereq Psych 384. Sensory and physiological aspects of vision, audition, and other senses.

562 Sensory/Physiological/Sensory Psychology 3 May be repeated for credit. Advanced current topics in physiological/sensory psychology.

563 Models of Learning 3 Historical and current theory and research in learning and cognition.

564 Cognition and Memory 3 Experimental approaches to human information processing, memory, and cognition.

565 Experimental Analysis of Behavior 3 Operant conditioning in relation to the experimental evidence currently available; examination of research strategies.

566 Seminar in Learning/Cognition 3 May be repeated for credit. Advanced current topics in learning/cognition.

567 Clinical Internship in Psychology V 2-16 May be repeated for credit; cumulative maximum 16 hours. Prereq passing of prelims 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 Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Alcohol Studies

AlcSt 365 Problems of Alcohol Addiction and Abuse 3 Same as Psych 365.

366 Treatment Approaches in Alcohol Abuse/Alcoholism 3 Same as Psych 366.

367 Special Topics in Alcoholism 3 May be repeated for credit; cumulative maximum 6 hours. Prereq AlcSt 365, 366. By interview only. Selected current topics in alcoholism and alcohol-related problems.

444 Basic Helping Skills 2 (0-6) Same as Psych 444.

447 The Practice of Alcoholism Counseling 2 Prereq completion of AlcSt minor. By interview only. Assessment; therapeutic interventions; record keeping/report writing; regulations governing alcoholism facilities; professional, ethical, legal issues; professional, agency, and community relations.

499 Special Problems V 1–4 May be repeated for credit. S, F grading.

Minor in Community Studies

The department offers a minor in community studies. The minor requires 18 hours, of which must come from R S 334, 335, 336, or Soc 330; 3 hours from Anth 418, H D 410, or R S 423, 431, 435, 441. The remaining 12 hours may come from any of the above courses or from: Ag Ec 320; Arch 202; ES/RP 335, 346; H D 205; NATRS 312, 438; Pol S 316, 416; R S 391, 491; Soc 301, 331, 332, 424. Please contact the department at (509) 335-8623 or akcook@wsu.edu for more information.

Description of Courses

Rural Sociology

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.

335 [S] Cross-National Perspectives on Community 3 Prereq introductory social sciences course. Comparative analysis of U.S. and non-U.S. communities, their sustainability, and their role in past and future human development.

336 Agriculture, Environment and Community 3 Prereq completion of one social science course. Interdependencies between farming/ranching, the natural environment and human communities including perspectives on sustainable agriculture.

391 Special Topics V 1-3 May be repeated for credit; cumulative maximum 3 hours. Prereq 3 credits in social sciences, sophomore standing. Topics in rural sociology or community studies.

423 Fundamentals of Participatory Research 3 Prereq sophomore standing, two social science courses. Principles/methods of involving community/interest group members in knowledge generation to understand local issues while building local capacity. Credit not granted for both R S 423 and 523.

431 Understanding State and Local Population Trends 3 Prereq 6 credits in social science courses. Methods for understanding local population trends and composition and anticipating their influence on community size and change.

435 Resolving Environmental Conflicts 4 (3-3) Prereq junior standing, two social science courses. Introduction to environmental conflict resolution via readings, discussions, simulation role plays and required papers; emphasis on interest-based approaches. Credit not granted for both R S 435 and 535.

441 Local Impacts of Global Commodity Systems 3 Prereq junior standing, two social science courses. Theories of globalization, its social, political and economic dimensions, and its impact on people and communities. Credit not granted for both R S 441 and 541.

491 Advanced Special Topics V 1-3 May be repeated for credit; cumulative maximum 3 hours. Prereq 6 credits in social sciences. Advanced topics in rural sociology or community studies.

523 Fundamentals of Participatory Research 3 Prereq graduate standing. Graduate-level counterpart of R S 423; additional requirements. Credit not granted for both R S 423 and 523.

Department of Rural Sociology


The Department of Rural Sociology offers courses and a minor in the area of community studies. These are designed to help students increase their knowledge of how community-based social structures influence human behavior, how and why community development efforts succeed or fail, how the globalization of the world's economic, political, and social systems are affecting the quality of life in communities worldwide, and how community conflicts may be resolved successfully. The courses and the minor are intended to help prepare students for effectively living and working in communities and for working to influence community development and change.

535 Resolving Environmental Conflicts 4 (3-3)
Prereq graduate standing. Graduate-level counterpart of R S 435; additional requirements. Credit not granted for both R S 435 and 535.

541 Local Impacts of Global Commodity Systems 3 Prereq graduate standing. Graduate-level counterpart of R S 441; additional requirements. Credit not granted for both R S 441 and 541.

591 Graduate Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Advanced topics in rural sociology or community studies.

Department of Sociology


Courses in sociology are designed to provide the student with a better understanding of what makes people and groups of people behave the way they do. Sociology studies the groups people form, the behavior and interaction of these groups, traces their origin and growth, and analyzes the influence of group activities on individual members. Some knowledge of sociology is widely regarded as a useful supplement to the course work in most fields. The course of study for majors is flexible enough to incorporate a variety of individual interests, such as deviance and criminology, the family, social welfare and social policy, and environmental sociology.

Majors may select one of eight options for specialized study: I. General Sociology, II. Social Research and Data Analysis; III. Law and Social Control; IV. Society, Environment and Technology; V. Personnel and Human Relations; VI. Business and the Economy; VII. The Family as an Institution; VIII. Social Welfare: Social Casework or Community Organization. These options are described below. 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 architecture and community planning, counseling, law, medicine, the ministry, politics, or public administration.

The department offers courses of study leading to the degrees of Bachelor of Arts in Sociology, Master of Arts in Sociology, and Doctor of Philosophy.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

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.

Major

A bachelor’s degree in sociology requires a minimum of 31 hours in which students must maintain a C average. Students may choose one of the following eight options, depending upon personal interests. All majors (except those selecting the social welfare option) must complete five required core courses in sociology, as well as five required and/or elective courses in their chosen option areas. Soc 366 cannot be counted for sociology credit. In addition to the required courses and recommended electives in sociology, students must earn 30 hours in related fields, half of which must be in 300-400-level courses. Selection of related fields from an approved list of courses in consultation with a faculty advisor makes possible the individualization of a student’s major program according to personal interests and career goals.

Required Core Courses

The following five courses are required of all majors selecting Options I-VI.

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<tr>
<th>Course</th>
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<tr>
<td>Soc 101 Introduction to Sociology</td>
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<tr>
<td>Soc 320 Introduction to Social Research</td>
<td>3</td>
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<tr>
<td>Soc 321 Quantitative Techniques in Sociology</td>
<td>1</td>
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<tr>
<td>Soc 410 Development of Social Theory</td>
<td>3</td>
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<tr>
<td>Soc 490 Senior Seminar</td>
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</table>

Option I. General Sociology

This track introduces students to the study of society and its effect upon individual behavior. It provides a general background adaptable to a variety of interests and occupational goals. Students may complete their major within this track or begin here and switch to a different track should their interests change. Five additional Soc courses.

Option II. Social Research and Data Analysis

The courses in this track prepare students who wish to take jobs in research and data analysis or who intend to continue their education in graduate school. The track places special emphasis upon the methods used in data collection as well as the foundations for sociological theory and analysis. Students who complete this track will be able to work as research assistants and technicians or pursue graduate work in sociology or any of the related social sciences.

Five recommended from the following, including Soc 420 (required): Soc 330, 340, 343, 350, 360, 371, 420, 421.

Option III. Law and Social Control

This track is designed for students who are interested in research or other employment in public and private social control institutions. Examples might include community social action programs, correctional counseling, juvenile job programs and other youth programs, and programs aimed at alcoholism and drug abuse.

Sociology courses in this track examine theories, research and data concerning a variety of social problems and forms of deviant behavior, such as crime and juvenile delinquent gangs and youth subcultures, suicide, mental health, drug use and abuse, poverty, race and ethnic relations, and societal responses to these problems.

Five recommended from the following, including Soc 360 (required): Soc 340, 360, 361, 362, 364, 365, 424, 442, 480.

Option IV. Society, Environment and Technology

This track is designed for students interested in the interrelationship between society and the natural and technological environments. Increasingly many social problems, political debates and public policy issues are tied to concerns about the physical environment. The use of resources, the protection of species and habitats, the application of technologies for production and consumption, and the disposition of material wastes are environmental concerns important to sociology.

The continued rise of environmental concerns has resulted in the passage of many environmental laws and regulations, the establishment of many private and public environmental agencies, and the growth in community and public interest groups. Students completing this track will be prepared for employment in a wide variety of private and public agencies with an environmental mission; for example, local and state departments of ecology, community recycling programs, environmental action groups, consulting firms, and lobbying organizations.

The courses in this option, while focused on the environment and technology, are aimed at a balance between sociological theory, empirical research methods and substantive investigations.

Five recommended from the following, including two from Soc 331, 415, 430: Soc 330, 331, 332, 364, 374, 415, 424, 430.

Option V. Personnel and Human Relations

All kinds of organizations hire people who manage the utilization of human resources from initial recruiting, hiring, training and development to separation or planning for retirement. These personnel managers help to determine company policies, the design of work situations, and methods of developing more efficient and desirable work environments. They need to understand the operation of large bureaucracies and the impact organizations have on people who work within them. A personnel manager is only one example of a human relations worker who must understand employers’ and employees’ points of view and work to meet the needs of both groups.

Sociological knowledge about people and how they interact in groups as well as how individuals and groups are affected by their social environment is necessary for anyone who works in the general area of human relations. Other important skills needed for this work are the abilities to observe, analyze, evaluate, and change behavior as well as the ability to communicate accurately in writing and speaking.

Five recommended from the following, including Soc 350 (required): Soc 270, 343, 350, 351, 356, 365, 371, 384, 446, 455, 480.

Option VI. Business and the Economy

There are many jobs in the business world that sociology graduates can fill very successfully. They are found in banks, insurance companies, health care organizations, hospitals, commercial recreation, merchandising and sales, real estate, as well as local government.

Individuals who want to work in any of these areas will be interested in the business and economy track in sociology. They will gain essential knowledge about complex organizations and society, professions and occupations, public opinion, social inequality, population trends, and minority cultural groups. In addition to sociological knowledge, effec-
tive employees in business need good oral communication skills, an ability to write clearly, analytical and problem solving skills, the ability to relate to other people, and a broad understanding of how people interact in their social environments.

Five recommended from the following, including Soc 343 or 442 (required): Soc 330, 331, 340, 343, 364, 373, 374, 384, 418, 424, 430, 442, 446, 480.

**Option VII. The Family as an Institution**

This track focuses on the family as an institution and the social structure in which families are embedded. The information contained in the course work is designed to provide students with appropriate backgrounds to seek jobs in social service agencies. It also provides a foundation for further study in the areas of family counseling or social work. The recommended sociology courses provide knowledge related to marriage, family dynamics, gender issues and societal changes and institutions.

Five recommended from the following, including Soc 150 and 351 (required): Soc 150, 340, 350, 351, 356, 384, 455.

**SOCIOLOGY DEGREE PROGRAM (121 HOURS)**

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**Freshman Year**

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<th>Semester</th>
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<td>Intercultural [I,G,K] (GER) 3</td>
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<td>Physical Sciences [P] (GER) 4</td>
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<td>Second Semester: Related Field Electives 1</td>
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<td>Soc 410 3</td>
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<td>Tier III Capstone (GER) 3</td>
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**Option VIII. Social Welfare**

This track is intended to provide students with appropriate training for employment in areas such as social welfare delivery services, public policy analysis, needs assessment, or social impact assessment. Two sequences are provided below.

**A. Social Casework**

Preparing students to gain knowledge and attitudes appropriate to enable them to assist clients who wish to make behavioral change is of major importance in this sequence. The National Association of Social Workers has identified specific goals for which an individual social work practitioner needs specific knowledge in order to achieve. They are:

A. To enhance problem-solving, coping and developmental capacities of people;
B. To link people with systems that provide resources, services and opportunities;
C. To promote effective and humane operations of systems;
D. To develop and improve social policy.

During the first two years, students will be expected to concentrate on General Education Requirements. In the third year the student will complete required courses and in the fourth year will spend a full semester in an agency field placement.

**Required Courses:** S W 190, 390, 393; 395 or 396; 490, 492, 493, 495 or 496; Soc 101, 320, 321, 340, 351.

**B. Community Organization**

This sequence is intended for the student who wishes to supplement the social welfare option with a specialization in the area of community organization. Graduates with these skills could be called upon within their local communities to provide leadership in major problem-solving tasks. Students intending to acquire a degree in this sequence could apply their skills in either employment or volunteer services. During the first two years, students are expected to concentrate on meeting GERs. In the third year the student will complete required courses and in the fourth year spend a full semester in an agency field placement.

**Required Courses:** S W 190; 390 or 393; 396, 490, 492, 493, 495 or 496; Soc 101, 320, 321, 330, 424.

**SOCIAL WELFARE DEGREE PROGRAM (122 HOURS)**

**FYDA**

**Freshman Year**

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<td>S W 495 or 496</td>
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Senior Year

First Semester

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<td>Prereq Soc 301</td>
<td>Introduction to Social Research 3</td>
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<tr>
<td>S W 393 (Elective)</td>
<td>Quantitative Techniques in Sociology 4</td>
</tr>
<tr>
<td>S W 490</td>
<td>Urbanization and Community Organization 3</td>
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<td>S W 493</td>
<td>Gender Studies 3</td>
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Second Semester

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<tbody>
<tr>
<td>S W 490</td>
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Minor

Sociology

101 [S] Introduction to Sociology 3 
102 [S] Social Problems 3 
150 Marital and Sexual Life Styles 3 
198 [S] Introduction to Sociology Honors 3

Description of Courses

Sociology

Soc 101 [S] Introduction to Sociology 3 
102 [S] Social Problems 3 
150 Marital and Sexual Life Styles 3 
198 [S] Introduction to Sociology Honors 3

[320] Introduction to Social Research 3 Methods of collecting data; surveys, experiments, field observations; organization and interpretation of data; reading social research findings.

[321] Quantitative Techniques in Sociology 4 Prereq Soc 320. Levels of measurement; measures of central tendency, dispersion and association; normal curve, statistical inference; logic of quantitative comparison and decision making.

[330] Urbanization and Community Organization 3 Organization, function, change, development, and decline of communities; applications emphasizing rural or urban settings.

[331] [S] Population, Resources, and the Future 3 Effects of population on resource depletion, environmental deterioration, social and economic structure; zero population growth prospects; limits to growth debate.

[332] Society and Environment 3 Prereq Soc 101. Society-environment relations, including environmental attitudes and behavior; the environmental movement and environmental policies and policy-making.


[343] Sociology of Professions and Occupations 3 Social organization of work in America including historical and contemporary trends, bureaucracy, gender/racial inequality, technological affects, work/family relations.

[345] Sociology of Sport 3 Sociological study of sport in America.

[350] [S] Social Psychology 3 Same as Psych 350.

[351] [S] The Family 3 Prereq Psych 105 or Soc 101. Family system and its interaction patterns; family life cycle from marriage through death; marital relations, divorce, sexuality, parenting, crisis, abuse.

[352] Sociology of Emotions 3 Prereq Psych 105 or Soc 101. Examination of emotions by surveying current theory and research; investigate emotions such as shame, guilt, jealousy, envy, and anger.

[356] Sociology of Aging 3 Aging as a lifelong process; behavior, personality competencies, social relations changes over the life course; historical, social, structural, demographies, contextual influences. Cooperative course taught jointly by WSU and UI (Soc 431).

[360] [S] Theories of Deviance 3 A survey of classical and contemporary theories of deviance.

[361] Criminology 3 Crime and society; nature, types, and extent of crime; theories of crime; control of crime.


[363] The Social Organization of Hate Crimes 3 Definition, measurement, social context, and social regulation of hate crimes as a social problem; emphasizing their production and social organization.

[364] [M] Law and Society 3 Prereq Crm J 101 or Soc 101. Various points of intersection of legal and social systems; special attention given to historical development.

[365] Problems of Alcohol Addiction and Abuse 3 Same as Psych 365.

[366] Treatment Approaches in Alcohol Abuse/Alcoholism 3 Same as Psych 366.


[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] Media, Culture and Society 3 The production of popular culture by media organizations and its effects on society.

[375] Aspects of Sustainable Development 3 Same as Bus 375.


[391] Special Topics in Sociology V 1-3 May be repeated for credit; cumulative maximum 6 hours.

[392] Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.

[397] [S] Topics- Study Abroad 3 Special topics in sociology taught in NCSC study abroad programs.

[398] [S] Topics- Study Abroad 3 Special topics in sociology taught in NCSC study abroad programs.

[410] [M] Development of Social Theory 3 Prereq Soc 101. Examination of the foundations of sociological theory; exposes students to original works of theorists. Credit not granted for both Soc 410 and 510.

[415] [S] Ecology of Human Societies 3 Prereq Anth 101 or Soc 101; ES/ERP 101; completion of one Tier I and three Tier II courses in appropriate area of coherence. Ecological and evolutionary foundations of human social organization and culture; theories of ecosystem and social system interdependencies.

[418] Human Issues in International Development 3 Same as Anth 418.

[420] Sociological Methods and Techniques 3 Prereq Soc 320. Introduction to sociological research methods; research procedures; measurement, observation, experimentation, survey methods, sampling, questionnaire construction, analysis.

[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] [S] Society and Technology 3 Prereq completion of one Tier I and three Tier II courses in the appropriate area of coherence. Role of technology in social evolution; social impacts and shaping of technology.

[442] (342) [T] Political Sociology 3 Prereq completion of one Tier I and three Tier II courses in the appropriate area of coherence. Sociological analysis of political institutions and power structures; social and cultural basis of political behavior.

[446] Medical Sociology 3 Social factors related to health and illness; organization and change in health care; impacts of health care reform, rising costs, and aging. Credit not granted for both Soc 446 and 546.
455 [S] Human Values 3 Prereq Psych 105 or Soc 101; Psych 350; completion of one Tier I and three Tier II courses in an appropriate area of coherence. The nature and measurement of values; relationship to attitudes, identities, and behavior; value development and change in self and society.


474 (374) [T] Collective Behavior and Social Movements 3 Prereq completion of one Tier I and three Tier II courses in an appropriate area of coherence, 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. Credit not granted for both Soc 480 and 580.

484 [S] Lesbian and Gay Studies 3 Same as W St 484.

490 [M] Senior Capstone 3 Prereq senior in Soc. Focused examination of advanced substantive topics in sociology, with opportunities for students to further develop and refine analytic and writing skills.

491 Advanced Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.

495 Internship V 1-6 May be repeated for credit; cumulative maximum 6 hours. Prereq social science major; by interview only. Work experience related to undergraduate major and career interests.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

510 Development of Social Theory 3 Graduate-level counterpart of Soc 410; additional requirements. Credit not granted for both Soc 410 and 510.

511 Theories of Social Organization 3 Major theories of social organization in historical perspective.

512 Theory Construction and Formalization 3 Testing; formalization of theoretical systems; adaptation of general models to specific problems.

517 Seminar in Contemporary Sociological Theory 3 Recent developments in sociological theory, analysis, application and appraisal of specific theoretical systems.

519 International Development and Human Resources 3 Same as Anth 519.

520 Research Methods in Sociology 3 Methodology of social research at the professional level.

521 Regression Models 3 Prereq Soc 421. Simple and multiple regression, structural equation models, nonlinear applications, applications for discrete dependent variables.

522 Advanced Sociological Methodology 3 May be repeated for credit; cumulative maximum 12 hours. Prereq Soc 521. Scaling theory, sampling theory, experimental design, measurement of association, multivariate analysis, current methods and techniques.

524 Sociology and Public Policy 3 Graduate-level counterpart of Soc 424; additional requirements. Credit not granted for both Soc 424 and 524.

525 Practicum in Survey Research 3 Prereq Soc 520. Practical experience in design and implementation of telephone and mail surveys; participation in all aspects of conducting a survey.

530 Demography 3 Population studies; causes, effects, and measurement of changes in fertility, mortality, and migration; population estimation and projection.

531 Human Ecology 3 Ecosystem context of human life; change viewed ecologically; sociological use and misuse of ecological concepts; issues in theory and research.

532 Environmental Sociology 3 Societal-environmental interactions; impacts of human societies on the physical environment; environmental impacts on human behavior and social organization.

533 Social Impact Assessment 3 Sociology’s contribution to environmental impact assessments; methods, contexts, and contexts of assessing social impacts of proposed developments.

534 Energy and Society 3 Energy and societal evolution; energy consumption patterns and quality of life; social impacts of energy shortages and alternative energy systems.

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.

542 Theories of Social Stratification 3 Marx, Dahrendorf, Weber, Sorokin, Mills, Pareto; problems of stratification research; social class and social position.

544 Sociology of Religion 3 Role of religion in social structure, process and change; analysis of religious behavior.

545 Sociology of Community 3 Community stability and change: interaction processes; decision making; societal linkages; effects on well-being.

546 Medical Sociology 3 Graduate-level counterpart of Soc 446; additional requirements. Credit not granted for both Soc 446 and 546.

548 Political Sociology 3 Systematic survey of theories and the major research literature in political sociology.

550 Survey of Social Psychology 3 Survey of theories, findings, and methods; self and identity, interaction processes, socialization, emotions, gender relations, group processes and network relations.

551 Comparative Family Systems 3 Comparative research on and theory of marital, family, and kinship relations and behavior.

552 Practicum in Family Research V 1-4 May be repeated for credit; cumulative maximum 12 hours. Research design, measurement, data collection, analysis, and manuscript writing.

553 Social Organization and the Family 3 The family as a social institution; principles of social organization applied to family relationships; macro-level analyses of family structure.

554 Social Psychology of the Family 3 The family as an interacting group; social psychological theories and research applied to family relationships; effects of families on individuals.

555 Sociology of Gender 3 Sociological theory and research on gender and gender inequality in American society.

556 Sociology of Work 3 Theory and research on changes that individuals undergo over the life course as a function of socialization and maturational processes.

560 Problems of Deviance Theory 3 Development of theories of deviant behavior; new issues in the study of deviance.

561 Sociology of Law 3 Social factors affecting the development and maintenance of legal structures and the processes of administration of justice.

567 Seminar in Crime and Delinquency 3 Contemporary theory and research in crime and delinquency.

568 Adolescent Deviance 3 Contemporary sociological theory and research in adolescent deviance; action programs; and emerging issues.

571 Small Group Theory and Research 3 Theory and methods of small group research; types of groups, formation, and development of communication networks; socialization in group situations.

572 Socialization 3 Theories of childhood and adult socialization; personality development; symbolic interaction; learning; agents of socialization.

573 Group Processes 3 Sociological research and theory dealing with overt behavior in human interaction settings and its cognitive antecedents.

580 Sociology of Race Relations 3 Graduate-level counterpart of Soc 480; additional requirements. Credit not granted for both Soc 480 and 580.

590 Special Topics in Sociology 3 May be repeated for credit; cumulative maximum 9 hours.

591 The Sociology Profession 1 May be repeated for credit; cumulative maximum 2 hours. Requirements, operations, problems, and possibilities of the sociology profession. S, F grading.

592 Special Topics in Sociology 3 May be repeated for credit; cumulative maximum 9 hours.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination 3 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination 3 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.

Social Welfare and Public Policy

225

S W

190 Introduction of Social Work 3 Survey of practice; social workers and social service agencies, individual, group, and community practice.

390 Social Welfare History and Policy 3 Prereq S W 190. Current social welfare programs; income maintenance, health services, criminal justice, public housing, child welfare; historical development of social welfare programs.


396 Social Work with the Aging 3 Prereq S W 190. The aging process; accessing community resources for the elderly; applying social work methods to the elderly and their family systems.
Department of Speech and Hearing Sciences

Professor and Department Chair, G. D. Chermak; Professor, C. L. Madison; Professors Emeriti, J. R. Franks, R. E. Potts, M. E. Wingate; Associate Professors, J. M. Johnson, J. A. Seikel; Assistant Professors, D. S. Barnkow, C. Coleman, C. Jones, B. L. Macaulay, L. Power, N. E. Vaughan, L. Vogel; Program Coordinator, E. Inglebret; Adjunct Lecturer, M. Mitchell; Instructor, K. Mitchell.

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, learning, and hearing problems.

Students are prepared, as speech-language pathologists and audiologists, to provide direct and consultative services in education and medical settings. The course of study emphasizes the physiological and psychological processes of normal development, the fundamental communication process, and the disorders of communication. The analytic and independent application of course content to the clinical process is encouraged.

The Speech and Hearing Clinic is the Pullman campus training facility for the Speech and Hearing Sciences Department. Speech, language, and audiology services are available through the Speech and Hearing Clinic.

The graduate program, located in Spokane, is a cooperative venture, combining faculty and resources of Washington State University and Eastern Washington University to form University Programs in Communication Disorders (UPCD). WSU students enroll through and receive their degrees from Washington State University. The Hearing and Speech Clinic is the Spokane campus training facility for the University Programs in Communication Disorders. Opportunities to work with special populations and in medical settings are readily available in the Spokane area. A capstone internship program provides intensive practical experience in many clinical and educational settings.

The graduate program is accredited nationally by the Council of Academic Accreditation of the American Speech-Language-Hearing Association and by the Board of Education of the state of Washington. State and national clinical and educational certifications require a master’s degree. Bachelor’s-level training in speech and hearing sciences is considered preprofessional.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

At least 45 of the total hours required for the bachelor’s degree in this program must be in 300-400-level courses. Successful completion of SHS 475 and 478 fulfills the university requirement of two writing in the major courses, designated [M].

The Speech and Hearing Sciences Department provides preparation for professional (graduate) training as a speech-language pathologist or audiologist. This course sequence is based on fall enrollment. GERs must be completed in College of Liberal Arts prior to the fifth semester.

SPEECH AND HEARING SCIENCES DEGREE PROGRAM (121 HOURS)  ✔FYDA

Freshman Year

First Semester

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<tr>
<th>Course</th>
<th>Hours</th>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Communication [C,W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
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<tr>
<td>Art &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
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<td>GenEd 111 [A] (GER)</td>
<td>3</td>
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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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Second Semester

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<tr>
<td>Biological [B] or Physical [P] Sciences (GER)</td>
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<tr>
<td>SHS 205</td>
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<td>SHS 250</td>
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Sophomore Year

First Semester

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<td>Biological [B] or Physical [P] Sciences (GER)</td>
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<td>SHS Electives¹</td>
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<td>Stat 212 [N] (GER)</td>
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Second Semester

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<tbody>
<tr>
<td>SHS 281</td>
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<tr>
<td>SHS 371</td>
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<tr>
<td>SHS 372</td>
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<tr>
<td>SHS 378</td>
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<td>SHS Elective¹</td>
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Junior Year

First Semester

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<td>SHS 376</td>
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<td>SHS 461</td>
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Second Semester

SHS 469 | 3 |
SHS 472 | 3 |
SHS 478 [M] | 3 |

Senior Year

First Semester

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<th>Course</th>
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<tr>
<td>SHS 377</td>
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<tr>
<td>SHS 473</td>
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<tr>
<td>SHS 475 [M]</td>
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<td>SHS 477</td>
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Second Semester

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<th>Course</th>
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<tr>
<td>SHS 471</td>
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<td>SHS 475</td>
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<td>SHS 479</td>
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<tr>
<td>SHS 480</td>
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<tr>
<td>SHS 482</td>
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<tr>
<td>Tier III Capstone (GER)</td>
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</tbody>
</table>

¹ SHS electives may not be used to fulfill GERs and include: Anth 403, 405, 450; Bio S; Cpt S; Drama 464; Engl 255, 256, 402; H D 201, 202, 203, 204, 301, 305, 350, 403, 420; Mgt 101, 301; Mkig 327; Physics, Psych 311, 312, 321, 333, 361, 363, 372, 384, 390, 412, 464, 490; Soc 356; Sp Ed 301; T & L 330, 333, 335; W St 220; and others in consultation with your advisor.

Minor

A minor in speech and hearing sciences requires a minimum of 16 hours including SHS 205, 371, 372; 8 hours must be 300-400-level courses excluding SHS 475.

Preparation for Graduate Study

Students with undergraduate majors in child development, the humanities, education, the social and behavioral sciences, as well as those with undergraduate majors in speech and hearing sciences, may be accepted for graduate study in this department.

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.

SHS 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.

SHS 250 [S] Perspectives on Disability
3 Historical, international, socioeconomic, ethical and personal perspectives on disability; individual choices, societal values, and social responsibility.

SHS 281 Sign Language I
3 Instruction and practical training in sign language for communication with persons who are deaf; deaf culture.

SHS 371 Development of Speech and Language in Childhood
3 Normal development of the cognitive, linguistic, and pragmatic components of language; introduction to language disorders in children.

SHS 372 Hearing and Hearing Disorders
3 Acoustic and psychophysiological aspects of normal hearing and speech perception, and the nature and consequences of hearing disorders.
375 Phonetics 2 Acoustic and applied phonetics.
376 Clinical Phonetics and Articulation Disorder 4 Clinical Phonetics and transcription; evaluation and treatment of articulatory disorders; delayed phonological acquisition; dysarthria; and dysphasia.
377 Anatomy and Physiology of the Speech Mechanism 4 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 Prereq SHS 205, 375. Basis of acoustics, acoustic phonetics, psychoacoustics, and speech perception, and instrumentation for measurement of related phenomena.
450 Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Study of specialized topics in speech and hearing sciences.
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) Practicum preparation; observation of and assisting in therapy; state laws; clinical methods. S, F grading.
466 Sign Language II 3 Prereq SHS 281. Sign language systems; vocabulary and skill development in signing and interpreting signs.
470 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.
471 Speech-Language Pathology and Audiology in Schools 3 Prereq SHS 461 or c/. Therapy methods and procedures in speech-language pathology and audiology; state/federal laws affecting public school therapy.
473 Language and Learning Disability 3 Diagnosis and remediation of language and learning disabilities in individuals manifesting disorders in understanding or using spoken/written language.
474 Stuttering: Problems and solutions. 4 (3-0-9) May be repeated for credit; cumulative maximum 9 hours. Prereq SHS 461. Practicum in diagnosis and therapy for speech/language and hearing disorders.
477 Aural Rehabilitation 3 Prereq SHS 372, 472. Theories and methods in aural rehabilitation for persons who are hearing-impaired: amplification; educational audiology; counseling techniques.
478 [M] Therapy for Language Delay and Disorders 3 Prereq SHS 371. Assessment and habilitation for the preschool and elementary-age child with language disorders.
479 Neurology for Speech-Language Pathology and Audiology 3 Prereq SHS 377. Neuroanatomical and neurophysiological bases of speech production and audition; neuropathologies of speech production and audition; and dysarthria.
480 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.
482 Diagnosis and Appraisal of Speech Language Disorders 3 Prereq SHS 376 or c/. 475 or c/. 478. Principles, techniques, and materials involved in exploring the nature of speech and language disorders; planning programs of therapy.
489 [T] Disability and Society 3 Prereq completion of one Tier I and three Tier II courses in appropriate area of coherence. Perceptions and stereotypes of disability related to theories of marginality and stigmatization; images in films, media, and literature.
490 Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. By interview only. Study of specialized topics in speech and hearing sciences.
499 Special Problems V 1-4 May be repeated for credit. S, F grading.
501 Research Methods 1-2 Philosophy of research, types of literature.
502 Computers in Clinical Practice 1 Computer basics and hardware and software available for evaluation and treatment of speech and hearing disorders.
503 Research Methods Part II 2 Experimental and descriptive designs, application of statistics, analysis of statistical results.
550 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.
552 Advanced Audiological Rehabilitation 3 Prereq SHS 477. Practices and research in communication strategies training; speech and listening technology; exploration of current issues.
556 Problems in Stuttering 3 Prereq SHS 474. Historical and current literature; problem-solving strategies applied to theoretical and clinical problems in stuttering.
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.
561 Advanced Speech and Hearing Sciences 3 Prereq SHS 372, 377. Theory, measurement, and instrumentation in acoustics, normal speech production, and audition.
562 Neuro-Motor Disorders 3 Prereq SHS 377. Underlying processes of neuromuscular control and feedback; results of damage and disease on neuromotor system.
563 Dysphagia 3 Prereq SHS 377. Anatomy and physiology of swallowing; evaluation and treatment of swallowing disorders.
564 Language of Children with Hearing Impairment 3 Prereq SHS 371, 477. Speech production and speech perception abilities and language development and intervention strategies with the hearing impaired.
565 Augmentative Communication 3 Prereq SHS 478, 482. Augmentive communication theory; implementation, training strategies, ongoing adjustments, and evaluating effectiveness.
566 Off-Campus Clinical Practice 2 V 2 (0-6) to 6 (0-18) May be repeated for credit; cumulative maximum 15 hours. Prereq SHS 375. By interview only. Advanced clinical practice in off-campus setting; evaluation and treatment of speech, language, and hearing disorders.
567 Issues in Clinic Service Delivery 3 Prereq SHS 475. On-site and off-site clinic operations, policies, procedures; legal, ethical, and professional issues for schools and medical settings. S, F grading.
570 Advanced Internship in Speech-Language Pathology and Audiology V 1-18 May be repeated for credit. Prereq SHS 471, 566, 575, by interview only. Advanced practicum in diagnosis of and therapy for communication disorders. S, F grading.
571 Seminar in Speech Pathology and Audiology 3 May be repeated for credit; cumulative maximum 9 hours. Exploration of ideas derived from current writings and research in speech pathology and audiology.
572 Hearing Aids 3 Prereq SHS 472, 477. Hearing aid technology, evaluation and fitting; programmable hearing aids; probe microphone measurement; prescriptive techniques.
573 Cleft Palate 3 Prereq SHS 377. Speech and voice problems associated with clefts of the lip and palate.
574 Acquired Central Nervous System Disorders 3 Prereq SHS 377, 478. Speech and language disabilities associated with brain injury.
575 Advanced Clinical Practice V 2-6 to 6 (0-18) May be repeated for credit; cumulative maximum 9 hours. Advanced clinical practice in evaluation and treatment of speech, language, and hearing disorders.
576 Voice Disorders 3 Prereq SHS 377. Functional and organic voice disorders resulting from various etiologies.
578 Professional Issues in Speech-Language Pathology and Audiology 3 May be repeated for credit; cumulative maximum 9 hours. Contemporary philosophical and professional issues in the field of communication science and disorders.
580 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.
582 Clinical Perspectives 3 Theory and clinical experience designed to assist students in integrating course work into a clinical perspective.
585 Hearing Conservation in Industry and Society 3 Prereq SHS 472. Prevention and management of noise-induced hearing loss; interactions between noise and other ototoxic agents and physical characteristics of the individual.
586 Pediatric Audiology 3 Prereq SHS 472. Developmental anatomy and physiology of the human auditory system; auditory behavior and pathologies in children; assessment of infants and children.
587 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.
588 Phonological Acquisition and Behavior 3 Prereq SHS 376. Current literature in articulatory development and deviancy; diagnosis and therapy.
360 Probability and Statistics 3 Same as Math 360.
392 SAS Special Topics 1 Prereq Stat 390 or working knowledge of SAS base system. May be repeated for credit. Special features of the SAS system including, but not limited to: SAS/GRAPH, SAS/ASSIST, SAS/IML, SAS/ACCESS, SAS/FSAP, advanced macros, complex inputs. S, F grading.
401 Statistics Analysis 3 Prereq Stat 212, 360 or 412. Concepts and methods of statistical research including multiple regression, contingency tables and chi-square, experimental design, analysis of variance, multiple comparisons, and analysis of covariance. Cooperative course taught by UI (Stat 401), open to WSU students.
410 Topics in Probability and Statistics 3 Same as Math 410. Credit not granted for both Stat 410 and 510.
412 Biometry 3 Rec statistics course. Principles and methods of statistical analysis as applied to biological experimentation. Cooperative course taught by WSU, open to UI students (Stat 412).
420 Statistical Analysis of Qualitative Data 3 Prereq Math 140, 171, 201, 202, or 220; statistics course. Binomial, Poisson, multinomial distribution; contingency tables; Fisher’s tests, log-linear models; ordinal data; applications in biology, business, psychology, and sociology. Credit not granted for both Stat 420 and 520. Cooperative course taught by WSU, open to UI students (Stat 420).
422 Sampling Methods 2 Prereq Stat 212 or 360. Simple and stratified random sampling; systematic sampling; cluster sampling; double sampling, area sampling. Cooperative course taught jointly by WSU and UI (Stat 422).
428 Geostatistics 3 Prereq Stat 360. Applications of random variables and probability in geologic and engineering studies; regression, regionalized variables, spatial correlation. Cooperative course taught by UI (Stat 428), open to WSU students.
430 Statistical Methods in Engineering 3 Same as Math 430.
442 Statistical Methods for Engineers and Scientists 3 Same as Math 442.
443 Applied Probability 3 Same as Math 443.
456 Introduction to Statistical Theory 3 Same as Math 456. Credit not granted for both Stat 456 and 556.
499 Special Problems V 1-4 May be repeated for credit. S, F grading.
504 Special Topics 3 Prereq Stat 444. Cooperative course taught by UI (Stat 504), open to WSU students.
507 Experimental Design 3 Prereq Stat 512. Methods of constructing and analyzing designs for experimental investigations; analysis of designs with unequal subclass numbers; concepts of blocking randomization and replication; complete and incomplete block designs; response surface methodology. Cooperative course taught by UI (Stat 507), open to WSU students.
510 Topics in Probability and Statistics 3 Graduate-level counterpart of Stat 410; additional requirements. Credit not granted for both Stat 410 and 510.
511 Statistics for Economics 4 Same as Ag Econ 511.
512 Analysis of Variance of Designed Experiments 3 Prereq Math 360 or Stat 412; Rec Stat 390, 391. Principles of experimental design and analysis and interpretation of data.
513 Advanced Econometric Application 3 Same as Ag Econ 513.
514 Nonparametric Statistics 3 Prereq Stat 512. Conceptual development of basic nonparametric tests including their power and efficiency. Cooperative course taught by UI (Stat 514), open to WSU students.
515 Statistical Packages 3 (2-3) Same as Math 515.
516 Time Series 3 Same as Dec 516. Cooperative course taught by WSU, open to UI students (Stat 539).
518 Techniques in Sampling 3 Same as Dec Stat 518.
519 Applied Multivariate Analysis 3 Same as Dec Stat 519. Cooperative course taught jointly by WSU and UI (Stat 521).
520 Statistical Analysis of Qualitative Data 3 Graduate-level counterpart of Stat 420; additional requirements. Credit not granted for both Stat 420 and 520. Cooperative course taught by WSU, open to UI students (Stat 520).
530 Applied Linear Models 3 Prereq Stat 412 or 430. The design and analysis of experiments by linear models.
531 Econometrics 3 Same as Econ 511. Cooperative course taught by WSU, open to UI students (Stat 531).
533 Theory of Linear Models 3 Prereq Math 420, Stat 430, or 456. Theoretical basis of linear regression and analysis of variance models; a unified approach based upon the generalized inverse. Cooperative course taught jointly by WSU and UI (Stat 533).
535 Regression Analysis 3 Prereq Stat 430 or 456. Conceptual development of regression estimation, prediction, tests of hypotheses, variable selection, diagnostics, model validation, correlation, and nonlinear regression. Cooperative course taught jointly by WSU and UI (Stat 510).
542 Applied Stochastic Models 3 Same as Dec Stat 542.
544 Applied Stochastic Processes 3 Prereq Stat 430 or 443. Poisson and Markov processes; queuing theory; auto-correlation; stationarity; power spectra; harmonic analysis; linear mean-square predictions. Cooperative course taught jointly by WSU and UI (Stat 544).
547 Statistical Pattern Recognition 3 Same as Cpt 547.
548 Statistical Theory 1 3 Same as Math 548.
549 Statistical Theory II 3 Same as Math 549.
552 Advanced Econometrics 3 Same as Econ 512.
555 Statistical Ecology 3 Prereq Stat 443. Ecological stochastic models, population dynamics and genetics, sampling, spatial analysis, discrete/continuous distributions, birth-death processes, diffusion processes. Cooperative course taught by UI (Stat and WLF 555), open to WSU students.
556 Introduction to Statistical Theory 3 Prereq graduate standing. Graduate-level counterpart of Stat 456; additional requirements. Credit not granted for both Stat 456 and 556.
573 Reliability Theory 3 Same as Math 573.
Department of Teaching and Learning


The Department of Teaching and Learning prepares teachers and other specialists for schools and colleges. Its programs are accredited by the National Council for Accreditation of Teacher Education (NCATE), the Northwest Association of Schools and Colleges and the State Board of Education. Courses of study are offered for the Bachelor of Arts in Education, Master of Arts in Education, Master of Education, Master in Teaching, Doctor of Education, Doctor of Philosophy, and for teacher certification.

The mission of the College of Education, through its constructivist model of learning, is to educate effective practitioners and scholars who possess the leadership and problem-solving skills necessary to meet the needs of citizens of the 21st century. The constructivist approach, in contrast to approaches that view the purpose of the teacher as merely transmitting knowledge, requires students to be active and critical participants in the formation of their own intellectual development in a life-long process and to evaluate their performance in terms of its effects upon children, schools, and society. It is our belief that teachers must be liberally educated, well grounded in human growth and development, informed and appreciative of cultural and linguistic diversity, committed to egalitarian ideals, capable of communicating and inspiring an interest in learning in others, competent in the technical aspects of teaching and managing group learning, and reflective about their own beliefs and actions. WSU’s constructivist model provides students with a challenging framework for the study of individual and group experiences, responses, and perceptions that form the basis for research that informs the application and formulation of educational theory and methodology used to advance professional practice.

Teacher Certification

The College of Education prepares individuals to teach in two broad categories: elementary education (multiple subject, grades K-8) and secondary (single subject, grades 4-12 and K-12). The teacher certificate, awarded by the State Superintendent of Public Instruction upon recommendation by Washington State University, designates the grade level and subject area in which the certificate holder is qualified to teach. Teacher preparation and certification are available in Pullman and at the branch campuses in Vancouver and Tri-Cities.

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 preparation is available in the following areas: agriculture, anthropology, biology, chemistry, drama, earth science, English, English/language arts, foreign languages (French, German, Russian, Spanish), history, family and consumer sciences, journalism, mathematics, music (broad, choral, instrumental), physics, political science, science, social studies, and speech. All single-subject endorsements are for grades 4-12 except foreign languages and music which are valid for grades K-12. Specific course requirements for each primary endorsement are listed under 4-12 Certificate Programs and K-12 Certificate Programs at the end of this section.

To enhance employment opportunities it is highly recommended that all teaching certificate candidates prepare to teach in a subordinate area by satisfying state requirements for a supporting endorsement. Course work for the following supporting endorsements is listed at the end of this section: anthropology, bilingual education, biology, chemistry, comparative religion, drama, early childhood, earth science, English, English as a second language, foreign languages (French, German, Japanese, Russian, Spanish), history, journalism, mathematics, music (broad, choral, instrumental), philosophy, physics, political science, psychology, reading, sociology, special education, and speech. State endorsement requirements are subject to change by the State Board of Education.

Admission to Teacher Preparation

Applicants who meet the minimum requirements listed below are eligible for but not assured admission. Enrollment in the program is limited and admission competitive. Admission requirements may change during the life of this catalog. Current information and application materials for programs on the Pullman campus can be obtained from the Teacher Education Student Services Center. Inquiries relating to certificate programs offered at WSU Vancouver and WSU Tri-Cities should be directed to the appropriate branch campus.

Minimum Criteria

1. Completion, within the last three years, of 80 hours of supervised work with children or youth in a diverse setting.

2. ACT or SAT score which meets current state requirements. (Inquire at Teacher Education Student Services Center.) Those holding a bachelor’s degree and those with two years of successful college work in which competency in oral and written communication, math and reading has been demonstrated are exempt.

3. Completion of at least 30 semester hours of course work

4. Minimum cumulative g.p.a. of 2.50

5. Engl 201 or equivalent composition course with a minimum grade of C

6. SpCom 102 or equivalent public speaking course with a minimum grade of C

7. Elementary and Early Childhood Majors: Math 251 and at least two GER science courses with minimum grades of C

Secondary Majors: Nine hours of course work in the primary endorsement area. Certified in major department; major department may have additional criteria for teaching option candidates.

8. An interview and writing sample may be required

All candidates must complete formal admission procedures and be admitted to teacher preparation prior to taking any professional education course work beyond T & L 300, 301, 315/316, or 317/318.

Admission to, or continued enrollment in, the teacher preparation program may be denied a candidate on the basis of review by the faculty.

Transfer and Postbaccalaureate Admission

Transfer students and postbaccalaureate applicants must meet the admission requirements stated above. For the teacher certificate to be awarded through WSU, the candidate must complete a minimum of fifty percent of the total hours required in the elementary or secondary professional education core, in the K-8 endorsement (if applicable), and the full semester of student teaching at WSU. Candidates should consult with the Teacher Education Student Services Center regarding equivalency of transfer work.

Field Experiences

All WSU teacher certificate programs provide opportunities for teacher candidates to gain meaningful experiences by working directly with and observing children in school settings. It is our intent to ensure that individuals placed in K-12 classrooms are adequately prepared and 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 individual placements, if in the professional judgment of faculty or coordinating field personnel there is a cause for concern about the fitness of that individual to work with children in a classroom setting.

In all programs, field experiences are required of all candidates. In Pullman, student teaching placements are arranged by Teacher Education Student Services with school districts contracted to provide field experiences for WSU students. Students may not make their own placements. At the branch campuses, WSU personnel are designated to make field placements in school districts with which we have contracts.

On the Pullman campus, applications for student teaching must be made one full academic year prior to
to the actual student teaching semester. Application forms can be obtained from Teacher Education Student Services. The following courses are designed as required field experiences.

**T & L 300, Introductory Field Experience** (1 credit) This first course in the certificate program engages the student in reflection upon the responsibilities and realities of the teaching profession. Subsequently, the student spends a full week participating and observing daily activities in a K-12 public or private school classroom.

**T & L 315/316, Elementary Practicum, or T & L 317/318, Secondary Practicum** (3 credits) Training in effective observation skills with participation and observing daily activities in a K-12 public or private school classroom. Subsequently, the student spends a full week participating and observing daily activities in a K-12 classroom.

**T & L 415, Directed Teaching** (16 credits) The program capstone is a semester of full-time participation in the teaching program of a public school. Prior to student teaching the certificate candidate will: 1) make application and pay certification fees; 2) complete all course work for the degree and teacher certificate; and 3) receive fingerprinting clearance from the Washington State Patrol, the FBI, and the Office of Professional Practices.

In the MIT programs at the branch campuses, field experiences are coordinated with academic work throughout the year. Under this arrangement, academic work builds on students' experiences in the field, and likewise, debriefing sessions related to field experiences are integral to the seminar that accompanies the field-based courses. This ongoing dialogue includes the cooperating teacher as well as other field-based personnel and often supports action-research projects conducted by the interning cooperating teacher partners.

**T & L 593, Pre-Internship and Seminar** (2 credits) In the fall, students participate in a pre-internship in K-8 classrooms in which academic and field-site work are integrated seamlessly. **T & L 595, Internship and Seminar** (10 credits) During the spring semester, students spend an increasing amount of time in classrooms, culminating their semester in a 10-12-week, full-time internship. Academic course work is addressed in condensed blocks of time in order to accommodate a schedule that supports the required full-time internship.

**The Teacher Certificate will be awarded if the following provisions are met:**

1. The candidate provides evidence of good moral character and personal fitness to teach. Fingerprinting is required. Background investigations are conducted by the Washington State Patrol, the FBI, and the State Superintendent of Public Instruction, Office of Professional Practices.
2. The degree is awarded and the professional preparation program is satisfactorily completed following these guidelines:
   - All course work in the professional core and in each primary endorsement is taken for a letter grade. Pass, fail grading is not accepted.
   - No more than 3 semester hours of correspondence credit is permitted to fulfill professional core requirements.
   - The candidate has earned no grade lower than C (2.0) for course work in the professional core, primary, and supporting endorsements.
   - The C minimum grade requirement also applies to math and science requirements for K-8 and early childhood majors.
   - The cumulative g.p.a. and the g.p.a. computed separately for course work in the professional core and each primary endorsement area is not less than 2.5.
   - The student has completed all work within five years of admission to teacher preparation. Those not finishing within this time limit will be subject to all new program requirements.

3. The candidate has achieved a passing score on the state-wide admission to practice examination, if required.
4. The candidate has made application and paid licensing fees.

**Certificate Renewal/Continuing Certificate** Information is available upon request.

**Degree Program Requirements**

Honors students complete Honors Requirements in place of General Education Requirements.

**P-3 CERTIFICATE PROGRAM: EARLY CHILDHOOD** Candidates for the P-3 Early Childhood primary endorsement will satisfy degree requirements through the Department of Human Development. For certification purposes, the K-8 elementary education endorsement is required with the P-3 primary endorsement. The student should include the following course work within GER selections to meet prerequisite and admission to teacher preparation requirements: Engl 101, 201; FSHN 130, GenEd 110 and 111; Psych 105; Soc 101; SpCom 102; Math Proficiency (Math 251 and 252); 4 hours physical sciences and 3 hours sciences; Mus 153 or music proficiency exam.

**Early Childhood**

Primary Endorsement/Major: 38 hours


The required supporting endorsement in K-8 elementary education includes the following hours: EdPsy 401, F A 390; Math 251, 252, Mus 388, Kin 473, T & L 300, 306, 307, 320/321, 352, 371, 385, 403, 415, 483.

Supporting Endorsement: 23 hours

This endorsement is available only to students completing the K-8 Elementary Education Certificate Program: H D 101, 201, 204, 302, 341, 342, 449, plus one from: H D 403, 410, 420.

**K-8 CERTIFICATE DEGREE PROGRAM: ELEMENTARY EDUCATION (121 HOURS) ▲/FYDA**

Candidates for the K-8 elementary education primary endorsement undergraduate program will satisfy those degree requirements of the Department of Teaching and Learning. The degree will be 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 a supporting endorsement that may be recommended by school districts.

**Freshman Year**

<table>
<thead>
<tr>
<th>First Semester</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>Intercultural [I, G, K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 101, if necessary, or Elective</td>
<td>3</td>
</tr>
<tr>
<td>Tier I Science [Q] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Mus 153, if necessary</td>
<td>3</td>
</tr>
<tr>
<td>Psych 105 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>SpCom 102 [C] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>T &amp; L 300</td>
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**Sophomore Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Biological [B] or Physical [P] Sciences (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Engl 201 [W], 301 [W], or 302 [W] (GER)²</td>
<td>3</td>
</tr>
<tr>
<td>H D 101 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 251²</td>
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<tr>
<td>Certify Major</td>
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**Second Semester**

<table>
<thead>
<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>Math 252 [N] (GER)</td>
</tr>
<tr>
<td>Physical Sciences [P] (GER)</td>
</tr>
<tr>
<td>T &amp; L 301</td>
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<tr>
<td>T &amp; L 330</td>
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**Junior Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sp Ed 420</td>
<td>2</td>
</tr>
<tr>
<td>T &amp; L 307, 320, and 385³</td>
<td>3</td>
</tr>
<tr>
<td>T &amp; L 315/316</td>
<td>3</td>
</tr>
<tr>
<td>Complete Writing Portfolio</td>
<td></td>
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</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kin 473</td>
</tr>
<tr>
<td>Mus 388</td>
</tr>
<tr>
<td>T &amp; L 306 [M], 352, and 371³</td>
</tr>
<tr>
<td>T &amp; L 483</td>
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**Senior Year**

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EdPsy 401</td>
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</tr>
<tr>
<td>T &amp; L 310 [M]</td>
<td>2</td>
</tr>
<tr>
<td>T &amp; L 403</td>
<td>3</td>
</tr>
<tr>
<td>T &amp; L 445</td>
<td>2</td>
</tr>
<tr>
<td>Tier III Capstone (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>1</td>
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</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>T &amp; L 415</td>
</tr>
</tbody>
</table>

1. During the freshman year, students must pass the Music 388 competency exam or take Music 153 and must qualify to enroll in Math 251, and begin the University Writing Portfolio.
2. Engl 201 and Math 251 must be taken by the end of the third semester for certification.
3. Concurrent enrollment required.
4-12 CERTIFICATE DEGREE PROGRAM

Candidates preparing for 4-12 secondary, specific subject matter teacher certification must complete course work in the Secondary Professional Core and course work listed below for one of the 4-12 primary endorsement program areas. The candidate will certify major with the subject matter department or in General Studies. In addition, the candidate must meet minimum admission requirements, make application, and be formally admitted to teacher preparation prior to enrolling in any professional education courses beyond T & L 300, 301, or 317/318. It is recommended that candidates plan to begin professional education courses in the sophomore or junior year to meet sequencing requirements. Students should include the following courses within their GER selections to fulfill prerequisite and admission to teacher preparation requirements. It is recommended that students complete a supporting endorsement/minor in addition to the primary endorsement/major.

Freshman Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td></td>
</tr>
<tr>
<td>Engl 101 [W]</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A]</td>
<td>3</td>
</tr>
<tr>
<td>Math Proficiency [N]</td>
<td>3</td>
</tr>
<tr>
<td>Psych 105 [S]</td>
<td>3</td>
</tr>
<tr>
<td>Tier I Science [Q]</td>
<td>3</td>
</tr>
<tr>
<td>Second Semester</td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G]</td>
<td>3</td>
</tr>
<tr>
<td>Biological Sciences [B]</td>
<td>4</td>
</tr>
<tr>
<td>GenEd 111 [A]</td>
<td>3</td>
</tr>
<tr>
<td>Primary Endorsement/Major</td>
<td>3</td>
</tr>
<tr>
<td>SpCom 102 [C]</td>
<td>3</td>
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Sophomore Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
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</tr>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Engl 201 [W], 301 [W], or 302 [W]</td>
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</tr>
<tr>
<td>Physical Sciences [P] (GER)</td>
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<tr>
<td>Primary Endorsement/Major</td>
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<tr>
<td>Second Semester</td>
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<tr>
<td>Intercultural [I,G,K] (GER)</td>
<td>3</td>
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<tr>
<td>Primary Endorsement/Major</td>
<td>12</td>
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<tr>
<td>T &amp; L 300</td>
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Junior Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>First Semester</td>
<td></td>
</tr>
<tr>
<td>Primary Endorsement/Major</td>
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</tr>
<tr>
<td>Supporting Endorsement</td>
<td>3</td>
</tr>
<tr>
<td>T &amp; L 301</td>
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<tr>
<td>Complete Writing Portfolio</td>
<td>3</td>
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<tr>
<td>Second Semester</td>
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<tr>
<td>Primary Endorsement/Major</td>
<td>3</td>
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<tr>
<td>Supporting Endorsement</td>
<td>V</td>
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<tr>
<td>T &amp; L 303</td>
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Senior Year

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<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
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<tbody>
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<td>First Semester</td>
<td></td>
</tr>
<tr>
<td>Primary Endorsement/Major</td>
<td>3</td>
</tr>
<tr>
<td>Supporting Endorsement</td>
<td>3</td>
</tr>
<tr>
<td>T &amp; L 317/318</td>
<td>3</td>
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<tr>
<td>Second Semester</td>
<td></td>
</tr>
<tr>
<td>Supporting Endorsement</td>
<td>V</td>
</tr>
<tr>
<td>Tier III Capstone (GER)</td>
<td>3</td>
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Fifth Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td></td>
</tr>
<tr>
<td>EdPsy 402</td>
<td>2</td>
</tr>
<tr>
<td>T &amp; L 328</td>
<td>2</td>
</tr>
<tr>
<td>T &amp; L 404</td>
<td>3</td>
</tr>
<tr>
<td>T &amp; L 450/451</td>
<td>2</td>
</tr>
<tr>
<td>Elective</td>
<td>3-6</td>
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<tr>
<td>Second Semester</td>
<td></td>
</tr>
<tr>
<td>T &amp; L 415</td>
<td>16</td>
</tr>
</tbody>
</table>

Supporting Endorsement: 17-21 hours

Earth Science

Primary Endorsement/Major: None
Supporting Endorsement: 22 hours
Astr 250, 390, C E 174; Geol 102, 206, 210, Ph S 430; plus one from Geol 201, 340, or 350.

Comparative Religion

Primary Endorsement/Major: None
Supporting Endorsement: 21 hours
Engl 335; Phil 101, 207; 314 or 315; one of Anth 303, Hist 273, 308, Soc 341; one of Phil 201, 220, 260, 460; one of Phil 300, 305, 310, 325, 335, 340, 420.

Comparative Religion

Primary Endorsement/Major: None
Supporting Endorsement: 21 hours
Engl 335; Phil 101, 207; 314 or 315; one of Anth 303, Hist 273, 308, Soc 341; one of Phil 201, 220, 260, 460; one of Phil 300, 305, 310, 325, 335, 340, 420.

English

Primary Endorsement/Major: 40 hours
Engl 209, 210, 300; 302 or 308; 305 or 306; 323, 324, 495 (or one from 492, 493, 494); one from Engl 255, 256, 354, 443, 458, Anth 256, 250, 355, 450; Engl 380, 381 or 382; one from Engl 383, 384, 385, 386, 387, 388, or 389; one from Engl 332, 333, 334, 335, 339, 366, 368 or 419; one from Engl 309, 311, 312, 321, 322, 341, 345 or 346; one additional 300-400-level literature course; one creative writing course strongly recommended.

Supporting Endorsement: 21 hours
Engl 209, 210; 255 or 324; 302, 323, plus 6 additional hours from courses numbered above 300.

English/Language Arts

Primary Endorsement/Major: 58 hours
Engl 209, 210, 300; 302 or 308; 305 or 306; 323, 324, 495 (or one from 492, 493, 494); one from Engl 255, 256, 354, 443, 458, Anth 256, 250, 355, 450; Engl 380, 381 or 382; one from Engl 383, 384, 385, 386, 387, 388 or 389; one from Engl 332, 333, 334, 335, 339, 366, 368 or 419; one from Engl 309, 311, 312, 321, 322, 341, 345 or 346; one additional 300-400-level literature course; one creative writing course strongly recommended. Plus at least 6 credits from each of the following groups: Journalism: Com 295, 410 or 415; Jour 305, 330 or 425; Speech: Com 245; SpCom 102 or 302; 185, 235, 385 or 485;
Department of Teaching and Learning

251 or 351; 324 or 334; Drama: 163, 260, 296, 361; 362, 365 or 366; 464 or 468.

Supporting Endorsement: None

Family and Consumer Sciences

Primary Endorsement/Major: 59 hours
Ag Ed 345, 440; two from AMT 215, 216, 317; FSHN 120/121, 130, H D 201, 202, 203, 204, 302, 320, 350, 406, 407, 409, 410, 480.

Supporting Endorsement: None

History

Primary Endorsement/Major: 42 hours
36 hours of Hist of which 21 must be 300-400-level. Program must include 6 hours of U.S., 6 hours of Europe, 6 hours of other fields (Africa, Asia, Canada, Latin America). Required courses: Hist 101, 102, 110, 111; one of Hist 230, 231, 270, 272, 273, 275; Hist 422, 469; 480 (not counted as part of the 36 hours); one from CAC 101, 111, 131, 151, 171, W St 200 or an approved substitute.

A minor (18-21 hours) is required for a degree in history. It is suggested that this minor be one of the supporting endorsements for teacher certification.

Supporting Endorsement: 21 hours
Hist 101, 102, 110, 111; 422; 3 hours from Hist 230, 231, 270, 272, 273, 275; plus 3 hours of 300-400-level Hist.

Journalism

Primary Endorsement/Major: 39 hours
Students will be certified as majors in journalism if they have completed SpCom 102, have a 2.5 cumulative g.p.a., and earn a 2.7 g.p.a. in the following core courses: Com 101, 245, 270, 295. Upon certification, these requirements will be met: Drama 260, 361, SpCom 102 or 302; 185 or 385; 235; 251 or 351; 324 or 334; plus two from SpCom 335, 401, 424, 485, 488.

Supporting Endorsement: 18 hours
Com 245; SpCom 235 or 302; 335 or 401; 351 or 488; one from SpCom 185, 235, 351 or 448, 385 or 485; 324 or 334. Drama 260 and 361 are recommended.

Psychology

Primary Endorsement/Major: None
Supporting Endorsement: 18 hours
Psych 105 or 198; 321 or 350; 361 or 363. One 400-level Psych course (Psy 470 or 490 recommended); 6 hours electives from 300- and 400-level Psych courses.

Science

Primary Endorsement/Major: 58 or 59 hours
Bio 103 (or 102 with a grade of B or better), 104, 430; Chem 105 or 115; 106 or 116, Geol 102, 210; Math 171, 220; 303, 320, 325, or 360; Phys 101 or 201; 102 or 202. In addition to the above requirements, the student must complete one option endorsement listed below:

Geology: A 345, 390, C E 174, Geol 206; 310, 300 or 340; 350.
Degree will be General Studies, Bachelor of Science, with an option in Physical Science.

Supporting Endorsement: None

Speech

Primary Endorsement/Major: 36 hours
Speech Communication: Students will be certified as majors in speech communication if they have completed SpCom 102, have a 2.5 g.p.a., and earn a 2.7 g.p.a. in the following core courses: Com 101, 245, 270, 295. Upon certification, these requirements will be met: Drama 260, 361, SpCom 102 or 302; 185 or 385; 235; 251 or 351; 324 or 334; plus two from SpCom 335, 401, 424, 485, 488.

Supporting Endorsement: 18 hours
Com 245; SpCom 302 or 302; 351 or 401; 351 or 488; one from SpCom 185, 235, 351 or 448, 385 or 485; 324 or 334. Drama 260 and 361 are recommended.

Theatre

Primary Endorsement/Major: 45 hours
Theat 163, 260, 264, 294; 296 or 496; 360 or 463; 361, 362, 363, 365, 366, 402, 460; 464 or 468; 467, 494.

Supporting Endorsement: 20 hours.
Theat 165, 260; 296 or 496; 361, 362; 365 or 366; 464 or 468.

K-12 CERTIFICATE PROGRAMS

Candidates for K-12 certificates shall declare a major with the subject-matter department or the Department of Teaching and Learning and meet the GER and degree requirements of the chosen department. Typically, students desiring primary endorsement in one of the foreign languages or music will follow the Professional Education Core listed in the 4-12 Certificate Program section, while students desiring primary endorsement in reading, bilingual education, English as a second language, or special education will follow K-8 elementary education requirements. Students diverting from this typical pattern should consult with an advisor about appropriate professional core courses.

In addition to meeting requirements of the degree-granting department, the student must meet admission requirements of the chosen department. 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 201, 301, or 302; Psy 105; SpCom 102.

It is recommended that candidates for a K-12 primary endorsement also complete a supporting endorsement from 4-12 or K-12 program offerings.

Bilingual Education

Primary Endorsement/Major: none
Supporting Endorsement: 20 hours
English as a Second Language
Primary Endorsement/Major: None
Supporting Endorsement: 20 hours

Foreign Languages and Literatures
Primary Endorsement/Major: 45-49 hours
French: For L 340, 101, 102, 203, 304, 307 or 407; 308 or 408; 320, 322, 409; For L 340; two from Fren 306, 310, 407, 408; two from Fren 315, 316, 416; two from Fren 420, 421, 422, 423, 424, 425, 427.
German: For L 340, 101, 102, 203, 304, 307, 317; Ger 304, 310, 322, 407, 408; For L 340; plus 7 hours from Fren 305 (maximum 2 hours), 310, 320, 424, 426, 499.
Russian: For L 340, 101, 102, 203, 304, 311, 315, 317, 320, 323; For L 340; plus 7 hours from Rus 305 (maximum 2 hours), 310, 320, 424, 426, 499.

Students who intend to obtain a teaching major in a foreign language should begin course work in that language in the freshman year. For a teaching minor in a second language or, with the permission of the advisor and the department chair, a teaching minor in another field, the student should begin work on the requirements not later than the beginning of the sophomore year. If the major and minor course programs, the requirements for the Initial Certificate, and the General Education Requirements in the College of Sciences and Arts are met, the degree will be a Bachelor of Arts in Foreign Languages and Literatures.

Supporting Endorsement: 19-29 hours
German: For L 340, Ger 101, 102, 203, 304, 317; from Ger 310, 312, 412, 425.

Students preparing to teach K-8 or P-3 take Sp Ed 301, 401, 402, 403, 404, 405, 407, 408; Students preparing in 4-12 or K-12 endorsement areas take all of the foregoing plus T & L 306, 320, Math 251, 252.

Supporting Endorsement: 26 hours
Students preparing to teach K-8 or P-3 take Sp Ed 301, 401, 402, 403, 404, 440, 490 (4 credits); one from Sp Ed 409, 420, 478. Students preparing in 4-12 or K-12 endorsement areas take all of the foregoing plus T & L 306; 320/321 or 462/463; Math 251, 252.

Description of Courses

Teaching and Learning
T & L 300 Introductory Field Experience I (0-3) Supervised field experience for preservice teachers designated as an orientation to education. S, F grading.
301 Learning and Development 3 Prereq Psych 105, T & L 300. Reflective inquiry about human learning, development, diversity, and individual differences; examination of implications for teaching and education reform.
303 Introduction to Middle Level Education 2 Prereq T & L 300. Study of adolescents; middle level organization and instructional strategies including field component at Lincoln Middle School.
305 [M] Survey of Elementary Reading and Language Arts 3 Prereq certified education major, H D 101, T & L 301, c// in 352, c// in 371. Attitudes, knowledge, and skills needed for successful teaching of reading and language arts.
308/309 Teaching Writing K-12 2 Prereq admission to teacher prep program; T & L 301 or c//; T & L 300. For preservice teachers. Improving writing skills; preparing effective writing lessons.
310/311 [M] Classroom Management 2 Prereq certified education major, T & L 301; 315 or 316. Strategies for developing positive and supportive classroom learning environments.
315/316 Elementary Practicum and Seminar 3 (0-9) Prereq T & L 301. Classroom experience prior to student teaching providing observation, reflection and gradual classroom involvement and teaching responsibility. S, F grading.
319 Literacy Practicum 1 (0-3) Practicum for students serving as literacy tutors in schools and agencies; methodologies, at-risk issues and community-school partnerships. S, F grading.
320/321 Elementary Reading Methods 3 Prereq certified education major, T & L 301, c// in 307, c// in 385. Methods and materials for teaching reading in elementary school.
324 Methods of Teaching Foreign Languages 3 Same as FOR L 340.
330 Diversity in Schools and Society 3 Gender, linguistic, cultural and learning diversity: concepts, issues, approaches to educating students in a diverse society.
333 Introduction to English as a Second Language (ESL) 3 Foundations of ESL with attention to basic concepts of second language processing in educational settings.
335 Bilingual Bicultural Education 3 Same as CAC 356.
339 Communicating in Diverse Classrooms 3 Selected topics dealing with linguistic diversity, cross-cultural communication, language development and language use.
352 Teaching Elementary Mathematics 3 Prereq certified education major, Math 251, 252; T & L 301, c/l in T & L 306, c/l in 371. Methods and materials for teaching mathematics in elementary and middle school.
355 Chicanas/os and Chicano/a Educational System 3 Same as CAC 355.
371 Teaching Elementary Science 3 Prereq certified education major, science GERs; T & L 301, c/l in 306, c/l in 352. Teaching methods and materials in elementary and middle school science.
385 Elementary and Middle School Social Studies 3 Prereq certified education major; T & L 301; c/l in T & L 307, c/l in 320. Teaching methods and materials in elementary and middle school social studies.
390 Elementary School Art Education 2 (1-2) Prereq T & L 301 or c/l. Creative methods for utilizing art media in the elementary classroom.
401 Practicum in Bilingual/Multicultural Education 2 (0-6) May be repeated for credit; cumulative maximum 6 hours. Prereq T & L 333, 335, or graduate standing. Work with students from diverse cultural and linguistic backgrounds in an educational setting.
403/404 Social Foundations of Curriculum 3 Prereq certified education major; T & L 315/316, or 317/318. The school; historical, and philosophical foundations of education; school law.
410 Theoretical Foundations for the Schooling of Language Minority Students 3 Prereq T & L 333, 335, or graduate standing. Theoretical foundations related to research and instructional strategies for effective schooling of language minority students. Credit not granted for T & L 410 and 510.
411 Bilingual Methods and Materials Across Content Area 3 Prereq T & L 333, 335, or graduate standing. Approaches, methods, and materials across content areas for the bilingual classroom.
412 Language and Cultural Factors in Mathematics 3 Prereq T & L 352 or teaching experience. Research and instructional strategies related to linguistic and cultural influences on learning math. Credit not granted for both T & L 412 and 512.
414 ESL Across Content Areas 3 Prereq T & L 333, or teaching experience. Research and instructional methodologies for English language acquisition across content areas. Credit not granted for both T & L 414 and 514.
415 Directed Teaching V 6 (1-15) to 16 (1-45) Prereq certified education major, program completion, WSP/FBI/SPI clearance, 2.5 g.p.a. overall, in primary endorsement and professional courses. By interview only. Semester of supervised teaching in K-12 schools; seminars focusing on effective teaching. S, F grading.
417 Innovations in Reading 2 Prereq admission to teacher prep program. Aspects of teaching reading; current programs and trends; activities and materials for enrichment. Credit not granted for both T & L 431 and 530.
431 Children’s Literature in the Curriculum 2 Prereq T & L 307 or teaching experience. Theory and classroom applications for selecting and using literature and storytelling in content areas; reading, writing, language development, the arts. Credit not granted for both T & L 433 and 532.
445/446 Educational Technology Used in the Schools 2 (1-3) or 3 (2-3) Prereq certified education major; T & L 301, 315/316. Consideration of all technologies in schools, applications for their use, some production techniques and instructional methodologies.
450/451 Content Literacy in Middle and Secondary Schools 2 or 3 Prereq admission to teacher prep program; T & L 300, T & L 301 or c/l. Reading and writing in content areas, grades 4-12; integrating service learning and community of learners approaches in teaching literacy skills.
452 Content Area Reading and Study Skills Practicum V 1-3 May be repeated for credit; cumulative maximum 3 hours. Prereq T & L 320 or 450. Development and delivery of vocabulary, comprehension, and study skills.
455 Educational Uses of Microcomputers 2 or 3 Prereq admission to teacher prep program; T & L 300; T & L 301 or graduate standing. Types and functions of educational software, evaluation criteria, designing instructional programs and classroom considerations.
462/463 Corrective Reading in the Classroom 2 Prereq admission to teacher prep program; T & L 300, 301. Investigation, formulation, application of informal and formal assessment for classroom instruction; specific needs of children with reading difficulties.
472 Technology for Language Learning 3 Prereq T & L 333, 335, or graduate standing. Computer technologies addressing the needs of language minority students and their teachers (including audio, video, graphics, and text).
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 School and Family Health Education 2 Prereq certified education major, T & L 301. Methods, materials, research, and resources to plan and implement comprehensive health education for all students.
487 Global Geography 3 Prereq declared major; 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 Instructional Practicum V 1 (0-3) to 3 (0-9) May be repeated for credit; cumulative maximum 8 hours. 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.
504 Early Childhood Programs for Children at Risk Identification of children at risk; their needs, appropriate curriculum, and program evaluation; description of parent-teacher community relationship and outreach.
506 Multicultural Classroom Instruction and Management 4 Instructional and management strategies for maximizing students’ opportunities to learn in a multicultural setting.
507 Developing Literacy in a Multicultural Setting I 3 Theoretical foundations of language arts in a multicultural setting.
508 Teaching Literacy in a Multicultural Setting II 3 Prereq T & L 507. Applying research-based assumptions to teaching language arts in a multicultural setting.
510 Theoretical Foundations for the Schooling of Language Minority Students 3 Graduate-level counterpart of T & L 410; additional requirements. Credit not granted for both T & L 410 and 510.
511 Teaching Poetry to Children and Young People 3 Prereq T & L 303, 307, or teaching experience. Elements and forms of poetry for children and young people; selection and utilization in the school curriculum.
512 Language and Cultural Factors in Mathematics 3 Graduate-level counterpart of T & L 412; additional requirements. Credit not granted for both T & L 412 and 512.
513 Seminar in Middle School Education 3 Prereq teaching experience. Curriculum patterns and recent research regarding instruction and materials in the contemporary middle school.
514 ESL Across Content Areas 3 Graduate-level counterpart of T & L 414; additional requirements. Credit not granted for both T & L 414 and 514.
515 The Education of Language Minority Students 3 Prereq K-12 teaching experience. Issues in the education of language minority students.
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.
525 Classroom Management Seminar 2 or 3 Contemporary issues in management of elementary, middle school, and secondary classrooms.
526 Research in Multicultural Education 3 Prereq T & L 515 or teaching experience. Research and instructional practices focusing on multicultural education.
527 Seminar in Teacher Education Instruction 1 May be repeated for credit; cumulative maximum 4 hours. Teacher preparation program components and rationale, university teaching strategies, and evaluation methods. S, F grading.
528 Content Area Reading Instruction: Theory and Practice 3 For teachers, supervisors, and administrators in elementary, middle, and secondary schools; influence of research on the design of reading strategies.
530 Innovations in Reading 2 Graduate-level counterpart of T & L 431; additional requirements. Credit not granted for both T & L 431 and 530.
532 Children’s Literature in the Curriculum 2 Prereq T & L 320 or teaching experience. Graduate-level counterpart of T & L 433; additional requirements. Credit not granted for both T & L 433 and 532.
534 Study Skills and Content Area Instruction 2 or 3 Research and practices related to time management, concentration and memory, note-taking, listening, comprehension and thinking skills; applications in subject-matter instruction.
537 Seminar in Language, Literacy, and Culture 2 or 3 Prereq T & L 411; graduate standing. 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 Prereq T & L 303, 320, or teaching experience. The most recent developments in language arts instruction for preservice and in-service teachers K-12.
540 Elementary School Social Studies 3 Prereq teaching experience. Elementary structures of various social sciences; research findings related to instruction; classroom applications and materials.
545 Oral Language Development: Roots of Literacy 3 Prereq teaching experience. Research on children’s oral language development; applications to elementary school reading and writing.
546 Teaching Written Expression in Elementary School 3 Prereq teaching experience. Research on children’s written language development; application to elementary school classroom.
547 Teaching Folk Literature to Children and Adolescents 3 Prereq T & L 307 or teaching experience. Folk literature as a genre in child and adolescent literature; curriculum applications; reading, language development, social studies, creative expression.
548 Teaching Adolescent Literature 3 Prereq T & L 307; teaching experience. Evaluating, selecting, and using literature for middle school and teenage students.
549 Communicating in a Multilingual Society 3 Prereq T & L 333, 335 or graduate standing. Study of language in social and educational context and its relation to cultural and linguistic diversity.
551 Psychology of Reading 2 or 3 Prereq T & L 320 or 450/451; teaching experience. Psychologi- cal, perceptual, motivational, developmental and physiological aspects of reading.
552 Literacy Development 3 Review of current research and approaches to instruction in the development of literacy in elementary and middle grades.
553 Diagnosis and Treatment of Reading Disability 4 (3-3) Prereq T & L 320/321 or 450/451. Remedial reading teachers, remedial reading teachers, and reading consultants; causes of disability, testing, diagnosis, and remediation; tutoring.
554 Elementary School Reading 2 Theory and strategies of teaching reading in elementary school.
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 Review of current research and approaches to instruction in the development of literacy in elementary and middle grades.
557 Research in Reading 2 or 3 Prereq EdPsy 305; T & L 551; teaching experience. Reading research, theoretical and applied, related to the teaching of reading.
558 Improving Comprehension through Literature 3 Prereq teaching experience. Key theoretical concepts and their implications for improved comprehension instruction, using children’s literature.
560 Research in Teaching 3 May be repeated for credit; cumulative maximum 6 hours. Prereq teaching experience. Recent developments in research on teaching: both quantitative and qualitative research methodologies emphasized.
561 Elementary School Mathematics 3 Prereq T & L 352; Math 252; teaching experience. Research on curriculum and instruction issues in elementary school mathematics.
563 Seminar in Precalculus Mathematics Education 3 Prereq T & L 542 or 562. May be repeated for credit; cumulative maximum 6 hours. Research on curriculum and instruction in mathematics education in grades K-12.
564 Elementary School Mathematics Methods 3 Introduction to research, theory, and methods of teaching K-8 mathematics; emphasis on integrating theory and practice.
565 Elementary School Science 3 Prereq T & L 371; teaching experience. Theories and research underlying science programs with classroom implications.
567 Elementary School Science Methods 3 Theoreti- cal base to design and implement appropriate standards-based elementary science instruction.
571 Science for All: An Individual and Multi-cul- tural Perspective 3 Prereq teaching experience. Implications of cultural and individual diversity for understanding western scientific and mathematical thought; an activity-based, educational perspective.
577 The At-Risk Learner 2 Strategies for working with at-risk students.
578 School and Community Interventions for At-Risk Students 2 How schools and communities work together to meet the at-risk challenge.
580 Multicultural Education in a Global Society 3 Graduate-level counterpart of T & L 480; additional requirements. Credit not granted for more than one of T & L 480, 580, 582.
582 Multicultural and Global Perspectives in Education 2 Concepts, theories and applications of multicultural and global perspectives in teaching and learning. Credit not granted for more than one of T & L 480, 580, 582.
583 Problem Solving in Elementary and Middle Level Education 4 Prereq admission to MIP program. Integration of knowledge and skills to address complex cases in teaching and learning.
586 Issues in At-risk Education 2 or 3 School and community resources to assist at-risk students and families.
588 Action Research: Teachers as Research 3 Prereq teaching experience. Theoretical concepts, research, issues, models, and strategies for implementation of action research.
590 Internship V 2-6 May be repeated for credit; cumulative maximum 12 hours. By interview only. Internship in professional positions. S, F grading.
593 Pre-internship and Seminar 2 (1-3) Instructional practice in diverse classroom settings and reflection on that practice. S, F grading.
594 Art and Music Education 2 Instruction covering the theory and classroom practice of art and music.
597 Topics in In-Service Education V 1-3 May be repeated for credit; cumulative maximum 9 hours. Graduate-level counterpart of T & L 497; additional requirements. Credit not granted for both T & L 497 and 597. S, F grading.
600 Special Projects or Independent Study Variable credit. S, F grading.
700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.
702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.
800 Doctoral Research, Dissertation, and/or Exam- ination Variable credit. S, F grading.
Special Education
Sp Ed
301 Education of Exceptional Children 3 Classification, developmental characteristics, and etiology of exceptional children; research and methods of instruction in the classroom.
401 Teaching Students with Disabilities 3 Prereq Sp Ed 301; certified major; c/l in Sp Ed 490 for 2 credits or graduate standing. Intervention and monitoring strategies for managing academic, social, and problem behaviors in classroom settings. Credit not granted for both Sp Ed 490 and 501.
402 Assessment and Curriculum for Students with Disabilities 4 Prereq Sp Ed 301; certified major; c/l in Sp Ed 490 for 2 credits, or graduate standing. Methods of assessment, curriculum development, and modification, and instruction for elementary-age students with mild disabilities. Credit not granted for both Sp Ed 402 and 502.
403 Secondary Education for Students with Dis- abilities 3 Prereq Sp Ed 301; certified major or graduate standing. Overview of practice in the schools for secondary students with disabilities; assessment, methods, and curriculum development. Credit not granted for both Sp Ed 403 and 503.
404 Professional Skills in Special Education 3 Prereq Sp Ed 301 and certified major or graduate standing. Communication, problem solving, li- ability, record keeping, professional development, legal issues, and program evaluation. Credit not granted for both Sp Ed 404 and 504.
### College of Veterinary Medicine

The College of Veterinary Medicine offers courses of study leading to the degrees of Doctor of Veterinary Medicine, Bachelor of Science in Veterinary Science, Master of Science in Veterinary Science, and Doctor of Philosophy. Additional information, including requirements for admission, is contained in the general information section of this catalog.

The College of Veterinary Medicine at Washington State University is accredited by the American Veterinary Medical Association.

The following program is an outline of the minimum requirements necessary for application to professional study in the College of Veterinary Medicine.

#### PREVETERINARY REQUIREMENTS

1. Arts and Humanities 3-6  
2. Communication Proficiency 6  
3. Intercultural Studies 3  
4. Social Sciences 3-6  
5. World Civilizations 6  
6. Math Proficiency 3  
7. Writing Portfolio

Courses to meet the above requirements must be selected from the list under the General Education Requirements for Graduation section of this catalog.

8. Physical and Biological Sciences 33-35  
Except under unusual circumstances applicants will be expected to have completed courses as indicated in each of the following: chemistry including organic and biochemistry; mathematics; physics; zoology or general biology; genetics.

9. Electives

### BACHELOR OF SCIENCE DEGREE IN VETERINARY SCIENCE

The Bachelor of Science degree in Veterinary Science combines credits earned in both the preprofessional and professional programs. The degree is available only to students who have been admitted to the professional program. This degree was designed to benefit veterinary medical students in obtaining employment, applying for scholarships, and qualifying for graduate-level course enrollments. A minimum of 120 semester hours is required for the degree. The minimum basic requirements are:

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<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>V M 500P</td>
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<td>V M 568P</td>
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#### Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

### PROFESSIONAL CURRICULUM

The professional curriculum for the Doctor of Veterinary Medicine degree is outlined below. A total of 147 semester hours are required for graduation. All courses required in the professional program are 500P-600P-level courses.

#### First Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hours</th>
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<tr>
<td>V M 522P</td>
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<tr>
<td>V M 535P</td>
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<tr>
<td>V M 536P</td>
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<td>V M 546P</td>
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<td>V M 589P</td>
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#### Second Year

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<th>Hours</th>
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<tr>
<td>V M 523P</td>
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<tr>
<td>V M 537P</td>
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<tr>
<td>V M 543P</td>
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<td>V M 551P</td>
<td>4</td>
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<tr>
<td>V M 587P</td>
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<td>V M 588P</td>
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#### Third Year

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<th>Third Year</th>
<th>Hours</th>
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<tbody>
<tr>
<td>First Semester</td>
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<tr>
<td>V M 543P</td>
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<td>V M 552P</td>
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<td>V M 553P</td>
<td>3</td>
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<tr>
<td>V M 554P or 555P</td>
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<tr>
<td>V M 569P</td>
<td>6</td>
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<tr>
<td>V M 585P</td>
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<td>V M 570P</td>
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<tr>
<td>V M 571P</td>
<td>4</td>
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<td>V M 572P</td>
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<tr>
<td>V M 590P</td>
<td>3</td>
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<tr>
<td>Electives</td>
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</table>
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 a species-oriented curricular track for the fourth year. Each track has its own course requirements and elective opportunities. All students must prepare and present a senior paper under faculty supervision.

Honors Program in Veterinary Medicine for Selected Students

A new program for admission of highly selected and academically qualified students to the Washington State University College of Veterinary Medicine has been established. This program admits students directly to the university and the college upon graduation from high school. This is a six-year program leading to the Doctor of Veterinary Medicine degree after satisfactory completion of the curriculum. It consists of two years of a unique undergraduate preprofessional education and the four-year professional program. The first two years of this program are a combination of Honors Program 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. Application should be made to the Honors Program as soon as students decide to enter WSU, because number of positions is limited.

Joint Program in Animal Science and Veterinary Medicine

See Department of Animal Sciences.

Preparation for Graduate Study

Students meeting the requirements of the Graduate School and having the Doctor of Veterinary Medicine degree or a bachelor’s degree in allied fields may take work leading to an advanced degree in the College of Veterinary Medicine. Students without the DVM degree will take courses in preclinical fields (anatomy, microbiology, pathology, physiology, parasitology, and pharmacology).

The undergraduate preparation should include two semesters of organic chemistry or one semester of physiological chemistry; one year of general physics and one semester of college algebra; one semester of comparative vertebrate anatomy and one semester of physiology.

A combined degree program is available which allows simultaneous pursuit of both DVM and graduate degrees. Admission to the College of Veterinary Medicine and to the Graduate School are prerequisite for entry into the combined degree program.

Department of Veterinary and Comparative Anatomy, Pharmacology, and Physiology


**Description of Courses**

**Veterinary Anatomy**

*V An 308 Functional Anatomy of Domestic Animals* 3 (2-3) Prereq Bio S 104; Chem 102. For majors in the College of Agriculture and Home Economics. Macrocopic functional morphology of domestic animals.

*413 Advanced Anatomy* 3 (1-6) May be repeated for credit; cumulative maximum 6 hours. Prereq V M 512P. Microscopic and gross anatomy of selected organ systems.

*499 Special Problems* V 1-4 May be repeated for credit. S, F grading.

*513 Advanced Neuroanatomy* 4 Prereq anatomy or physiology course that included neuroanatomy. Advanced gross and microscopic anatomy of the mammalian central nervous system. Cooperative course taught by WSU, open to UI students (Zool 513).

*592 Seminar* 1 May be repeated for credit. Cooperative course taught by WSU, open to UI students (VS 592).

*600 Special Projects or Independent Study* Variable credit. S, F grading.

*700 Master’s Research, Thesis, and/or Examination* Variable credit. For MS in veterinary science only. S, F grading.

*800 Doctoral Research, Dissertation, and/or Examination* Variable credit. For PhD in veterinary science only. S, F grading.

**Veterinary Medicine**

*V M 350 Skeletal Preparation* 1 May be repeated for credit; cumulative maximum 3 hours. Technique of skeletal preparation is mastered by undertaking and completing project. Skeleton becomes property of student. S, F grading.

*508P Research Orientation and Resource* 1 Prereq student in veterinary research track. Resources and important issues for identifying and developing a focused area of scholarly activity in biomedical research. S, F grading.

*509P Research Issues, Ethics, and Literacy* 1 May be repeated for credit; cumulative maximum 3 hours. Prereq student in veterinary research track. Philosophy and history of methodological, ethical and political issues relevant to biomedical research using selected monographs and essays. S, F grading.

*510P Veterinary Cell Biology* 10 (9-3) Prereq first year in Vet Med. Principles of veterinary microanatomy and physiology; relationships of cell morphology to function.

*511P Veterinary Anatomy I* 4 (0-12) Prereq admission to Vet Med or graduate student in Vet S. Detailed macroscopic functional morphology of the dog and cat.

*512P Veterinary Anatomy II* 3 (0-9) Prereq V M 511P. Detailed macroscopic functional morphology of domestic animals.


*518P Applied Anatomy of Large Animals 2* (1-3) Prereq V M 512P. Applied anatomy of large animals including surgical anatomy.

*519P Anatomy of the Avian and Exotic Species 1* (0-2) Prereq V M 511P. Detailed macroscopic functional morphology of selected avian and exotic species, emphasizing the specialized anatomical adaptations of these animals.

*520P Veterinary Physiology* 5 (4-3) Prereq V M 510P. Physiology of domestic animals. Cooperative course taught by WSU, open to UI students (VS 518).

*521P Mammalian Neuroscience* 3 (2-3) Prereq V M 510P. Neuroanatomical and neurophysiological bases of veterinary neurology, emphasizing central and peripheral sensory and motor systems. (g)

*522P Pharmacology/Toxicology* 1 Prereq third year in Vet Med. Pharmacology and toxicology of the systems of domestic animals. (g)

*523P Pharmacology/Toxicology II* 4 (3-3) Prereq V M 522P. Pharmacology and toxicology of the systems of domestic animals. Continuation of V M 522P. (g)

*525P Animal Behavior for the Practicing Veterinarian* 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. Prereq by interview only. Study of the treatment of behavioral problems and training of domestic animals.

*526P Domestic and Exotic Animal Behavior* 2 (1-3) Prereq by interview only. Advanced study of animal behavior, emphasizing difference between exotic and domestic animal behavior. Cooperative course taught by WSU, open to UI students (Zool 526).

*527P Clinical Animal Behavior* 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq by interview only. Participation in the treatment of animals with behavioral problems and in animal behavior training classes for clients and their animals.

**Veterinary Pharmacology and Toxicology, and Physiology**

*V Ph 465 Reverence for Life* 1 or 2 Ethical and scientific issues relating to human responsibilities to all forms of life with emphasis on animals. (g)

*499 Special Problems* V 1-4 May be repeated for credit. S, F grading.

*501 Perspectives in Pharmacology and Toxicology* 1 Prereq P/T major. By interview only. Historical perspectives, current characteristics and trends in pharmacology and toxicology. S, F grading.

*505 Design and Analysis of Biomedical Experiments* 4 Prereq Math 107, statistics course. Design of experiments and application to clinical and basic biomedical research; choosing, applying, and evaluating appropriate data analysis methods.
521 Cardiorespiratory Systems 3 (2-3) A system and quantitative treatment of physiological processes in the heart, blood vessels, and lungs.
525 Special Topics in Veterinary and Comparative Pharmacology 1 (0-3) Prereq V M 522P. Practical veterinary pharmacology techniques and clinical applications.
528 Behavioral Mechanisms in Physiology 3 Examination of the physiological transduction mechanism that enables animals to interact behaviorally with their environment. Cooperative course taught by WSU, open to UI students (Zool 528).
529 Cellular and Molecular Neurobiology 3 Prereq biochem 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 (Zool 529).
530 General and Comparative Neurophysiology 4 Same as Neuro 530.
531 Neuroscience Laboratory Rotation 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. Prereq graduate standing. Ten-week rotation through each of three research laboratories: learning procedures and techniques in neuroscience. S, F grading.
533 Advanced Neurophysiology 3 Nervous system from molecular to the behavioral level; electrophysiology. Cooperative course taught by WSU, open to UI students (Zool 533).
535 Pathophysiology of Blood 2 Physiology of erythrocyte, hemostatic system and transfusion medicine.
536 Physiology and Biochemistry of Neuropeptides 3 Prereq BC/BP 563, or Zool 553. Synthesis and metabolism, use as neurotransmitters and neurohormones, mechanisms of receptor interactions. Cooperative course taught by WSU, open to UI students (Zool 536).
538 Neuroendocrinology 3 Role of the central nervous system in controlling reproductive functions, stress, growth, biological rhythm and behavior. Cooperative course taught by WSU, open to UI students (AVS 538).
541 Biochemistry 3 Prereq Chem 342. Intermediate biochemistry; introduction to metabolism and the chemical and physical properties of biomolecules. Cooperative course taught by UI (MMBB 541), open to WSU students.
542 Biochemistry 3 Prereq Chem 342. Intermediate biochemistry; introduction to metabolism and the chemical and physical properties of biomolecules. Cooperative course taught by UI (MMBB 542), open to WSU students.
555 General and Cellular Physiology 4 (3-3) Prereq cell physiology or genetics course. Physicochemical mechanisms of cellular function.
557 Advanced Mammalian Physiology 4 Prereq V Ph 555. Function and control of mammalian organ systems.
564 Brain-Endocrine Interaction 3 Neuroanatomy, physiology, neuropharmacology and role of neuroendocrinology; the integrative regulation of endocrine and visceral functions. Cooperative course taught by WSU, open to UI students (Zool 564).
590 Seminars may be repeated for credit; cumulative maximum 4 hours. Seminars by advanced graduate students and faculty (both in VCAPP and around WSU) on their research areas. S, F grading.
592 Research Topics in Physiology 2 May be repeated for credit; cumulative maximum 6 hours. Concepts and controversies within a specific and highly focused domain of physiological research.
593 Special Projects or Independent Study Variable credit. S, F grading.
594 Master’s Research, Thesis, and/or Examination Variable credit. For MS in veterinary science only. S, F grading.
596 Doctoral Research, Dissertation, and/or Examination Variable credit. For PhD in veterinary science only. S, F grading.

Department of Veterinary Clinical Sciences


Description of Courses

Veterinary Medicine

V M
502P Language and Culture for International Externships 1 Prereq two semesters Spanish. Language and culture for students intending on carrying out international externships in veterinary medicine, animal production, or related areas.
504P International Field Studies V 1 (0-3) to 6 (0-18) Prereq V M 501P, 502P, 503P. Fourth year Vet Med. Preceptorship in the US or overseas, under direct supervision of veterinarian, agriculture or public health professional; related to international veterinary medicine. S, F grading.
552P Small Animal Medicine II 5 Prereq V M 551P. Diagnosis and treatment of small animal diseases. Continuation of V M 551P.
554P Surgery Laboratory I 1 (0-3) Prereq c/i in V M 553P. Surgical exercises using small animals.
555P Surgery Laboratory II 1 (0-3) Prereq c/i in V M 553P. Surgical exercises minimizing use of living animals.
556P Small Animal Soft Tissue Surgery Elective 1 Prereq V M 471, 554P/555P, c/i in 553P. Instruction of advanced surgical techniques, primarily involving canine and feline soft tissue.
558P Diseases and Management of Pet and Wild Birds 2 (1-3) Prereq third year Vet Med. Management and handling, diagnosis and treatment of various disease conditions of pet and wild birds.
568P Animal Restraint and Production 1 (0-3) Prereq first year in professional DVM program. The restraint and production aspects of animals commonly seen by veterinarians.
570P Large Animal Medicine II 6 Prereq V M 569P. Diagnosis and treatment of large animal infectious diseases. Continuation of V M 569P.
572P Surgery II 2 Prereq V M 553P. Large animal surgical techniques.
573P Surgery Laboratory III 1 Prereq third year Vet Med. Surgical exercises using large animals.
574P Equine Lameness 1 1 Prereq c/i in V M 552P. Principles of diagnosis and treatment of musculoskeletal disorders of the horse.
575P Small Animal Theriogenology 1 Prereq third year professional DVM program. Information on management and disorders of the canine and feline reproductive systems as it relates to veterinary practice.
577P Herd Production Medicine 2 (1-3) Health Management of livestock herds, targeting measures of productivity and profitability.
585P Epidemiology 2 Minimally quantitative survey in which health is framed as a population phenomenon.
586P Analytic Epidemiology 2 (1-3) Prereq statistics course. Problem-solving methods related to health events and other occurrence phenomena. (g)
589P Clinical Pathology 3 (2-3) Prereq second year in Vet Med. Laboratory diagnostic procedures and interpretation.
590P Veterinary Clinical Nutrition V 1-3 Same as A S 414
592P Small Animal Transfusion Therapy 1 (0-3) Prereq V MS 460, 463. Blood collection, storage, pretransfusion testing, component therapy and transfusion reactions.
598P Introduction to Clinics 1 (0-3) Prereq 3rd year Vet Med. Introduction to the practice of clinical veterinary medicine and surgery within the Veterinary Teaching Hospital including records, presentation and protocol. S, F grading.
599P Special Problems V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq enrollment in DVM Professional Program. S, F grading.


602P Small Animal Surgery 4 (0-12) Prereq fourth year Vet Med. Surgical cases in clinic, ward round, case discussions by students, seminars by faculty, designed surgical exercises.

603P Clinical Medicine II V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year professional DVM program. Clinical medicine training in diseases of food animals and horses; clinic rounds and diagnostic procedures. (OSU)

610P Basic Small Animal Rotation V 8 (0-24) to 12 (0-36) Prereq fourth year Vet Med. Required rotation through the medical and surgical services of the Small Animal Clinic of the Veterinary Teaching Hospital.

611P Small Animal Surgery—Orthopedic Service V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical experience with the Small Animal Orthopedic Surgery Service in the Small Animal Clinic, Veterinary Teaching Hospital.

612P Small Animal Soft Tissue Surgery V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical experience with the Small Animal Soft Tissue Surgery Service in the Small Animal Clinic of the Veterinary Teaching Hospital.

613P Small Animal Medicine Elective Referral V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical experience with the Small Animal Medicine Referral Practice Service in the Small Animal Clinic of the Veterinary Teaching Hospital.

614P Small Animal Medicine—Local Practice Elective V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical experience with the Small Animal Medicine Local Practice Service in the Small Animal Clinic, Veterinary Teaching Hospital.

615P Small Animal Medicine—Speciality Practice Elective V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical experience in a specialty practice area of small animal clinical medicine or surgery.

599P Exotic Animal Medicine V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical experience with the Small Animal Medicine Exotic Practice Service in the Small Animal Clinic, Veterinary Teaching Hospital.

617P Clinical Neurology V 1 (0-3) to 3 (0-9) Prereq 4th year DVM student. Rotation will emphasize neuroanatomical localization, differential diagnosis, diagnostic testing, and treatments.

630P Basic Large Animal Hospital Rotation V 8 (0-24) to 12 (0-36) Prereq fourth year Vet Med. Required rotation through the Medical and Surgical Services of the Large Animal Clinic, Veterinary Teaching Hospital.

631P Population Medicine/Theriogenology V 1 (0-3) to 4 (0-12) Prereq fourth year Vet Med. Required rotation for Agricultural Animal Track students through population medicine laboratory and Theriogenology Services of the Veterinary Teaching Hospital.

632P Theriogenology V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical theriogenology subjects in large and small animals.

633P Agricultural Animal Elective V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical subjects in food animal diseases and herd health/preventive medicine.

634P Epidemiology of Diseases V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. V M 408/509. Principles of disease outbreak investigations, host-agent-environment interactions, and intervention strategies in animal populations. Field trips required.

635P Preventive Medicine V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Preventive medicine and management practices related to control of animal diseases (Caldwell).

636P Equine Medicine Elective V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical experience with the Equine Medicine Service in the Large Animal Clinic of the Veterinary Teaching Hospital.

637P Equine Surgery Elective V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical experience with the Equine Surgery Service in the Large Animal Clinic, Veterinary Teaching Hospital.

638P Equine Track V 1 (0-3) to 4 (0-12) Prereq fourth year Vet Med, enrollment in equine career track. Clinical experience with the Equine Surgery Service of the Large Animal Clinic, Veterinary Teaching Hospital.

639P Small Animal Theriogenology - Clinical Rotation 2 (0-6) Prereq fourth year professional DVM program. Hands-on experience in diagnosis, treatment, prevention and management of disorders related to canine and feline reproduction.

650P Anesthesia Case Management V 1 (0-3) to 4 (0-12) Prereq fourth year Vet Med. Required rotation through the clinical anesthesia service of the Small Animal Clinic and Large Animal Clinic of the Veterinary Teaching Hospital.

651P Pharmacy and Therapeutics I 1 (0-3) Prereq fourth year Vet Med. One-week overview of Washington and federal drug laws, inventory control, formulary management, therapeutics for a successful practice.

599P Technical and Diagnostic Radiology V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 4 hours. Prereq fourth year Vet Med. Laboratory exercises and.instructional sessions to increase proficiency in clinical diagnostic radiology.

653P Imaging Services Elective V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical and laboratory experience with the Radiology Section in the Small Animal Clinic, Veterinary Teaching Hospital.

657P Clinical Pathology V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 4 hours. Prereq fourth year Vet Med. Clinical laboratory diagnosis and management.

675P Emergency and Critical Care V 1 (0-3) to 4 (0-12) Prereq fourth year Vet Med. Required rotation for all students through the Emergency and Critical Care Services, Veterinary Teaching Hospital.

676P Veterinary Research Practicum V 1 (0-3) to 8 (0-24) May be repeated for credit; cumulative maximum 14 hours. Prereq fourth year Vet Med. Enrollment in research track program or approved for research career track. Individualized research project. S, F grading.

690P Externship V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq fourth year Vet Med. Theory of practice of veterinary medicine in a non-university setting. S, F grading.

691P Guided Preceptorship 1 (0-3) or 2 (0-6) Prereq fourth year Vet Med. Guided preceptorship in an accepted extramural clinical or laboratory setting.

692P Government, Corporate, and Zoological Practice Elective V 1 (0-3) to 6 (0-18) May be repeated for credit; cumulative maximum 10 hours. Prereq fourth year Vet Med. Elective experience in government, corporate, and zoological veterinary medicine arranged through nationwide matching program. S, F grading.

693P Laboratory Animal Medicine V 1 (0-3) to 4 (0-12) May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year Vet Med. Elective clinical and laboratory experience with major research facilities such as the Department of Comparative Medicine, University of Washington. S, F grading.

699P Advanced Clinical Elective V 1 (0-3) to 4 (0-12) Prereq fourth year Vet Med. Advanced clinical subjects developed as courses for fourth year veterinary students.

Veterinary Clinical Medicine and Surgery

VMS

261 Issues in Animal Agriculture 3 For majors in agriculture, Common diseases and injuries of farm animals.

367 Prevention and Management of Equine Health Problems 3 Basic health care of horses with respect to good health care and recognizing and responding to disease and injury situations.

444 Physiology of Disease 3 Same as A S 444.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

582 Seminar in Clinical Medicine 1 May be repeated for credit.

583 Advanced Anesthesiology 2 Prereq DVM degree. Advanced veterinary anesthesiology as applied to clinical practice.
584 Comparative Theriogenology 1 Prereq DVM degree. Lectures from WSU College of Veterinary Medicine and Department of Animal Sciences and from UI Department of Animal and Veterinary Science.

585 Selected Topics in Advanced Clinical Neurology 1 or 2 May be repeated for credit; cumulative maximum 10 hours. Prereq DVM degree. Advanced veterinary neurology as applied to clinical practice.

587 Hospital Rotation 3 (0-9) May be repeated for credit; cumulative maximum 6 hours. Prereq DVM degree. Supervised practical experience in all service areas of the veterinary hospital. Cooperative course taught by WSU, open to UI students (VS 587).

589 Advanced Clinical Veterinary Medicine V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq DVM degree. Special topics.

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.

594 Advanced Small Animal Surgery 3 (2-3) May be repeated for credit; cumulative maximum 6 hours. Prereq DVM degree. Clinical experimental techniques.

595 Advanced Laboratory Diagnosis V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq DVM degree. Advanced clinical laboratory diagnosis and interpretation.

596 Advanced Radiology 2 (1-3) Prereq DVM degree. Advanced study in the field of veterinary radiology and radiation treatment.

598 Surgery Residents Seminar 1 May be repeated for credit. Prereq DVM degree. Surgery residents' and interns' presentations of case reports, literature reviews and research. S, F grading.

600 Special Projects or Independent Study Variable credit. S, F grading.

601 Master's Research, Thesis, and/or Examination Variable credit. For MS in veterinary science only. S, F grading.

600 Doctoral Research, Dissertation, and/or Examination Variable credit. For PhD in veterinary science only. S, F grading.

Department of Veterinary Microbiology and Pathology


Description of Courses

Veterinary Medicine

V M

500P Professional Orientation and Ethics 1 Orientation to and ethics of the veterinary medical profession for first-year veterinary students. S, F grading.

534P Veterinary Immunology 3 (2-3) Prereq major in Vet Med or graduate student in Vet S. Immunology for the professional veterinary student.

535P Veterinary Virology 3 Prereq major in Vet Med or graduate student in Vet S. Virology for the professional veterinary student. (g)

536P Veterinary Bacteriology 4 (3-3) Prereq second year Vet Med. Bacteria that produce disease in animals. (g)

537P Veterinary Parasitology 4 (3-3) Prereq second year Vet Med. Arthropods, protozoa, and helminths of veterinary importance; their host-parasite relationship and control. (g)


543P Veterinary Medicine and Human Health 2 Prereq third year Vet Med. Preparation for veterinary students in public health and food hygiene.

545P [M] Pathology 13 (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). (g)

546P [M] Pathology 16 (5-3) Prereq V M 545P. Principles of system and organ response to injury, and the effects of injury/disease on the animal host. (g)

559P Special Animal Medicine V 1-3 Prereq third year Vet Med. Handling, restraint, care, normative features, procedures and diseases of unusual animals as pets or those used in food production or research.

656P Diagnostics V 1 (0-3) to 4 (0-12) Prereq fourth year Vet Med. Advanced study in diagnostic pathology, toxicology, and microbiology.

694P Avian Medicine 4 (0-12) Prereq fourth year Vet Med. Laboratory diagnosis and pathology of avian (pet bird and commercial fowl) diseases.

Veterinary Microbiology

V Mic

435 Disease Concepts for Wildlife Biologists 3 Biological aspects of infectious diseases and environmental contaminants in wild mammalian and avian populations. Cooperative course taught by WSU, open to UI students (VS 435/WLF 444). (g)

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

531 Mechanisms of Immune Regulation in Laboratory and Domestic Animals 3 Prereq Micro 412. Analysis of immune regulation in vertebrates; ontogeny, phylogeny, immune regulation.

532 Virology 3 Prereq BC/BP 364; Micro 414 or V M 535P. Advanced topics in basic virology.

535 Advanced Readings in Veterinary Microbiology 1 (0-3) May be repeated for credit. Prereq fourth year in Vet Med or graduate student in Vet S. Supervised reading program which pursues publications of intermediate technical difficulty and advanced textbooks.

536 Diagnostic Microbiologic Conference 1 (0-3) May be repeated for credit. Prereq graduate student in Vet S. Identification of animal pathogens in clinical material.

537 Diagnosis of Viral and Rickettsial Diseases of Domestic Animals 3 (1-6) Prereq V M 534P, 535P, 546P. Clinical, pathological, and laboratory diagnosis of viral and rickettsial diseases of domestic animals.

541 Advanced Diagnostic Microbiology 1 (0-3) May be repeated for credit; cumulative maximum 8 hours. Prereq V M 534P, 535P, 546P. Microbiology laboratory for performing and interpreting virologic, serologic, and related tests for the diagnosis of animal diseases.

562 Molecular Diagnostic Microbiology 1 (0-3) May be repeated for credit; cumulative maximum 3 hours. Prereq V Mic 541 or c/l. Discussion and molecular laboratory for detection and identification of infectious agents for the diagnosis of animal diseases.

572 Advanced Topics in Microbiology, Parasitology, or Immunology V 1-3 May be repeated for credit; cumulative maximum 4 hours. Advanced topics in microbiology, parasitology, or immunology presented in short-course, or workshop format.

591 Seminar in Diagnostic Microbiology 1 May be repeated for credit; cumulative maximum 8 hours. Seminar in diagnostic veterinary microbiology.

592 Advances in Immunobiology 1 May be repeated for credit. Cooperative course taught by WSU, open to UI students (VS 592).

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit. For MS in veterinary science only. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. For PhD in veterinary science only. S, F grading.

Veterinary Pathology

V Pa

410 Survey of Pathobiology 3 Overview of pathobiology experimental oncology, epidemiology, and aging that emphasizes detecting, understanding and preventing disease.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Case-based Learning in Veterinary Pathology 1 (0-3) to 3 (0-9) Prereq second year Vet Med or DVM degree. Principles of pathophysiology, infectious disease, laboratory diagnosis, zoonoses, and food safety learned through the development of multistep teaching cases.

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.

543 Laboratory Animal Pathology 3 May be repeated for credit; cumulative maximum 6 hours. Prereq V M 559P. Pathology of principal diseases of laboratory animals.

544 Immunopathology 3 Prereq V M 545P. V Mic 531. The role of immune processes in the pathogenesis of disease.

240
545 Mechanisms of Disease 5 Prereq Micro 412 or V M 534P, 545P. Biochemical and immunological mechanisms involved in disease processes from the comparative standpoint.

547 Advanced Veterinary Parasitology 3 Prereq graduate or advanced undergraduate. Mechanisms involved in host-parasite relationships important to control of parasitic infections.

548 Introduction to Research 1 Introduction to research.

555 Research in Progress Seminar 1 May be repeated for credit; cumulative maximum 8 hours. Presentation of on-going student research project results.

569 Research Proposal 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. Written preparation and oral presentation of a research proposal.

571 Advanced Topics in Pathology V 1-3 May be repeated for credit; cumulative maximum 4 hours. Advanced topics in pathology presented in short-course, or workshop, format.

592 Anatomic Pathology Seminar 1 May be repeated for credit. Histopathologic description and diagnosis.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master's Research, Thesis, and/or Examination Variable credit. For MS in veterinary science only. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. For PhD in veterinary science only. S, F grading.

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Program in Women's Studies

Director: D. Haynes; Associate Professor, N. Sturgeon.

The Program in Women's Studies offers an interdisciplinary study of women, with an emphasis on their lives, roles, and contributions. The program is designed to achieve four major objectives:

1. To provide students with a systematic knowledge of the multidisciplinary scholarship about and by women;
2. To enhance the qualifications of students preparing for careers in business, education, government, communications, the sciences and social sciences, among others;
3. To facilitate the understanding of continuing social change in gender-related activities; and
4. To further university and societal goals of gender equality.

The program offers a minor in Women's Studies. The minor requires a minimum of 16 hours of credit which must include W St 200, 391, 481. A Bachelor of Arts in Humanities, Social Sciences, or Liberal Arts, concentrated in Women's Studies, is available through the General Studies Program.

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Description of Courses

Women's Studies

W St

150 Marital and Sexual Life Styles 3 Same as Soc 150.

200 [S] Introduction to Women's Studies 3 Multi-disciplinary perspectives on women and on their past, present, and potential contributions.


216 [H] Main Currents in American Culture 3 Same as Hist/Engl 216.


230 Human Sexuality 3 Same as Psych 230.

235 [J] African American History 3 Same as CAC 235/ Hist 205.

250 [S] The American Health Care System 3 Same as PharP 250.

290 Women and Work: Choices and Changes 3 Interdisciplinary approach to the complex relationship between women and work in contemporary America; including review of trends, issues, and policies.

298 [S] History of Women in American Society 3 Same as Hist 298.

300 [S][M] Intersections of Race, Class and Gender 3 Prereq CAC 101 or W St 200. Intersections between race, class and gender through case studies; experiences in interdisciplinary methods.

301 Topics in Women's Studies V 1-3 May be repeated for credit; cumulative maximum 9 hours. Further examination of social, cultural, economic, and political aspects of women's lives in historical and contemporary contexts.

302 Contemporary Masculinity and Men's Issues 3 Analysis of the development of masculinity in its biological and cultural forms.

305 [S] Gender and Politics 3 Same as Pol S 305.

306 [H][M] Introduction to Literary Criticism 3 Same as Engl 306.

308 [H] Women Artists I, Middle Ages-1900 3 Same as F A 308.

309 [H] Women Writers 3 Same as Engl 309.

310 [H] Women Artists II, Twentieth Century 3 Same as F A 310.

311 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.

315 Women in Management and Leadership 3 Analysis of women's historical and contemporary role in American management.

316 [K] Gender and Culture 3 Same as Anth 316.

320 Resource Management and Problem Solving 3 Same as H D 320.

321 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.

324 [S] Psychology of Women 3 Same as Psych 324.

330 Women and Social and Legal Policy 3 Historical base of women's legal rights and obligations; analysis of legislative and judicial responses to sexual discrimination.

332 Global Feminism 3 Prereq W St 200. An interdisciplinary approach to examining women's roles and experiences throughout the world and different approaches to feminism/feminisms.

335 Women in Latin American History 3 Same as Hist 335.

350 [S] European Women's History, 1400-1800 3 Same as Hist 350.

351 [S] The Family 3 Same as Soc 351.

363 [H] Women of Note 3 Same as Mus 363.

375 [M] Women and Ethics 3 Prereq Phil 101 or W St 200. Study of gender and feminisms and their effect on contemporary ethical theories and practices.

380 [S] History of Medicine 3 Same as Hist 380.

382 Modern American Literature 3 Same as Engl 382.

384 [S] Sociology of Gender 3 Same as Soc 384.


398 [M] History of Women in the American West 3 Same as Hist 398.

402 Cross-Cultural Gender and Kinship 3 Same as Anth 402.

403 [S] Violence Toward Women 3 Same as Crm J 403.


407 [Q] [B] History of Women 3 Same as Zool 407.

409 [H] Women Writers in the American West 3 Same as Engl 409.

410 Internship 1-12 Prereq W St 200; 300 or 481 with B or better, by interview only. May be repeated for credit; cumulative maximum 12 hours. Supervised experience in approved campus or community agencies or projects focusing on women's issues, S, F grading.

411 Asian Pacific American Women 3 Same as CAC 411.

421 The Frontier and the American West 3 Same as Hist 421.

454 [T] La Chicana in US Society 3 Same as CAC 454.

460 [K] Gender, Race, and Nature in American Culture 3 Prereq W St 200 or 300; completion of one Tier I and three Tier II courses in an appropriate area of coherence. Exploration of American culture through examination of cultural representations of nature in mainstream and environmental politics.

475 Marginality and Movement 3 Same as Kin 475.

481 [M] Theoretical Issues in Women's Studies 3 Prereq W St 200 or 300. Introduction to the field of feminist theory, including classic interdisciplinary methods, and applications of this scholarship to contemporary women's issues.

484 [S] Lesbian and Gay Studies 3 Prereq Soc 101, 102, or W St 200. Prereq completion of one Tier I and three Tier II courses in an appropriate area of coherence. Interdisciplinary exploration of issues related to gender and sexuality, explored transhistorically and cross-culturally, including race, class and age differences.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

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Department of Zoology


Zoology is the science that deals with animals. It embraces not only the traditional study of animal diversity and natural history, but also modern disciplines extending from subcellular and cellular to ecological and evolutionary scales. An undergraduate preparation in zoology provides a student with the basis for pursuing outdoor and indoor vocational opportunities in ecology, laboratory research and technology, human health, animal health and welfare, and a variety of other biological specializations.
The department awards the Bachelor of Science in Zoology. The flexible curriculum leading to this degree meets the needs of students with various interests and goals. Built around an integrated core of basic science courses are several optional course programs designed to prepare students either for attending postgraduate or professional school or for entering a vocational field. The general zoology option provides a broad, solid foundation in zoology. It is aimed especially at students desiring a well-rounded background for further professional studies, such as in graduate or veterinary school. Students aspiring to enter medical or dental school should find the premedical/predental option to be particularly appropriate. Another option in the department is the course program in ecology. This program provides the graduate with a broadly based ecological understanding applicable to such fields as environmental, wildlife and conservation biology.

A fourth optional program in animal care prepares students for careers involving animal care and maintenance in research institutions, zoos, aquaria, and clinics. In addition to the above principal options, other course-program options can readily be arranged through advisor consultation to meet a student’s particular interests or academic goals.

The department offers an undergraduate minor in zoology, as well as administering a minor in ecology. At the graduate level, the department awards both master’s and doctoral degrees in 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. The last two are particularly prominent areas of the department’s graduate program. A list of specific faculty interests can be obtained by writing to the department.

There are modern facilities for graduate study in cell and developmental biology, genetics, physiology, functional morphology, systematics, and behavioral, environmental and evolutionary biology. The university’s rural location is conducive for field studies. Special facilities include the vertebrate collections of the Charles R. Conner Museum, the George E. Hudson Biological Preserve of 760 acres, the Electron Microscopy Center, the Eastlick Varium for maintaining lab animals, and local terminals connected to the university's central computing facility and to the Ethernet system.

Cooperation with numerous other campus units extends research opportunities. Cooperative arrangements with faculty in such departments as biochemistry and biophysics, botany, entomology, genetics and cell biology, animal sciences, natural resource sciences and the veterinary college are readily achieved.

Degree Program Requirements

Honors students complete Honors Requirements in place of General Education Requirements.

Candidates for the Bachelor of Science in Zoology must fulfill the university and the College of Sciences requirements for graduation as described elsewhere in this catalog. The math and science components of those requirements are fulfilled in 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. No courses graded pass, fail can be applied toward satisfying university or college requirements or toward fulfilling departmental requirements or program options.

ZOOLOGY DEGREE PROGRAM

All of the department's course-program options, including those arranged on an individualized basis with the advisor, require the completion of the department’s core curriculum consisting of an array of courses common to all options plus 12 hours of additional courses taken in the particular program option. The core curriculum thus incorporates a portion of option-specific course work to form an integrated set of degree requirements.

The core curriculum fulfilling the requirements for the B.S. Degree in Zoology is comprised of the following: Bio S 103 and 104; Bio S 372 [M] or Zool 330; chemistry through organic (Chem 240, or 340 and 341); GenCB 301; General Physics (Phys 101 and 102, or 201 and 202); math through calculus (Math 140, 171, or 202); Zool 393 [M]; Zool 353, or 352 and 452 [M], or 450 and 452 [M]; two from Zool 320, 322, 324; Zool 405; an additional 12 hours of program-option courses, other Zool courses or advisor-approved supportive course work. In the degree program sequence below, these additional courses are designated as Program Option Courses.

Freshman Year

First Semester Hours
Bio S 103 [B] (GER) 4
Chem 101 [P] or 105 [P] (GER) 4
Engl 101 [W] (GER) 3
Math 140 [N], 171 [N], or 202 [N] (GER) 3 or 4

Second Semester Hours
Bio S 104 [B] (GER) 4
Chem 102 [P] or 106 [P] (GER) 4
Communication Proficiency [C,W] (GER) 3
GenEd 110[A] (GER) 3

Sophomore Year

First Semester Hours
Chem 240 (or 340 & 341) 4
GenEd 111[A] (GER) 3
Phys 101 [P] or 201 [P] (GER) 4
Program Option Course 4

Second Semester Hours
Intercultural [J,G,K] (GER) 3
GenCB 301 4
Phys 102 [P] or 202 [P] (GER) 4
Program Option Course 3 or 4

Junior Year

First Semester Hours
Arts & Humanities [H,G] (GER) 3
Program Option Course 3 or 4
Social Sciences [S,K] (GER) 3
Zool 320, 322, or 324 4
Zool 393 [M] 2
Complete Writing Portfolio

Second Semester Hours
Arts & Humanities [H,G] 3-6
Social Sciences [S,K] (GER) 3 or 4
Bio S 372 [M] or Zool 330 3 or 4
Program Option Course 3 or 4
Zool 320, 322, or 324 4

Senior Year

First Semester Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 6
Program Option Courses or Electives 6-8
Zool 405 3

Second Semester Hours
Program Option Courses or Electives 8-10
Tier III Capstone (GER) 3
Zool 353 4

1 Math 107 may be needed before enrolling in calculus, depending on math placement score.
2 Premedical and pre-dental students should select Chem 105, 106, 340 & 341, and subsequently take Chem 342 and either Chem 343 or BC/BP 364. Pre-veterinary students may take Chem 240, but also need to complete BC/BP 364 to qualify for veterinary school admission.
3 Zool 224 and its complementary laboratory course, Zool 225, are recommended as preparatory courses for advanced zoology courses and can be applied toward the 12 hours of additional credits in the core curriculum. If a student elects not to take them, Zool 322 is available to take in the fall semester of the sophomore year.
4 Consult the list of courses in the course-program options below or see advisor for other options.
5 Students selecting the General Zoology Option or the Ecology Option should take Bio S 372.
6 One of Zool 352, 353, 450 is required. Zool 353 includes a laboratory component. If Zool 352 or 450 is selected, Zool 452 is also required as a complementary lab course.

COURSE-PROGRAM OPTIONS

The complement of courses in each of the department’s four principal options is listed below. Students are advised to complete the entire complement to assure adequate preparation in the option. Twelve of the credits earned are applied as part of the core curriculum to satisfy degree requirements.

Animal Care Option

A S 285, Zool 224, 225, 438 [M], 498 (1-4 hours of career experience internship); A S 314 or NATRS 431; Micro 301, Zool 417 [M]. (Also BC/BP 364 if preveterinary).

Ecology Option

Bot 332, 462 (463 [M] also recommended), one from NATRS 450 [M]; Zool 330, 426 and 429; 443; 447; one from Zool 310 [M], 410, 411, 412, 414; one from Entom 343, 344, Zool 322, 412, 423, 428, 430 [M]; an approved statistics course. (This option fulfills a minor in ecology).

General Zoology Option

An additional selection from Zool 353; Zool 352, 452 [M] or 450, 452 [M]; two from Entom 343, 344, 448, Zool 322, 412, 423, 428, 430 [M]; an approved statistics course. (Also BC/BP 364 if preveterinary).

Pre-medical/Predental Option

An additional selection from Zool 353; Zool 352, 452 [M] or 450, 452 [M]; Chem 105, 106, 340, 341, 342; BC/BP 364 or Chem 343; one course from Entom 343, 344, 448, Zool 322, 412, 417 [M], 423, 428, 430 [M]; an approved statistics course.
Preventive Veterinary Studies

Students preparing for veterinary school are advised to select the General Zoology Option or the Animal Care Option described above. Either of these options provides appropriate course work for amply meeting the qualifying standards for Veterinary Medicine College admission at Washington State University and at veterinary schools elsewhere with similar admission requirements.

Premedical and Prevental Studies

Washington State University has no certified major or degree specifically designated as premedicin or prental. The above described Premedical/Prental Option is offered by the Zoology Department as a course program designed to provide a solid academic foundation that successfully prepares the student for admission into medical or dental school.

Minor in Ecology


Minor in Zoology

Requires a minimum of 16 hours, including Zool 224, 225; 320, 322, or 324; 8 additional hours of Zool, 6 of which must be upper division. No more than 2 hours of Zool 496, 497, 498, or 499 may be included in the 16 hours.

Transfer Students

A student entering the department from a community college or as a junior transfer from another university should have completed the equivalent of the following: Bio S 103, 104; math through calculus; chemistry through organic (Chem 240); Phys 101, 102; a course in genetics; part of the non-science university requirements; and a year of foreign language if two years were not previously completed in high school.

Description of Courses

Zoology

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


224 Adaptive Strategies of Animals 3 Prereq biology course. Adaptive functions of animal structural designs, systemic processes and sensory mechanisms; means of accommodating the physical environment; feeding and antipredator tactics.

225 General Zoology Laboratory 1 (0-3) Invertebrate and vertebrae animals; structural features, adaptation, diversity and systematic relationships.

251 Introductory Human Physiology 4 (3-3) One semester Chem. Basic physiological processes in humans from the cellular to the organismal level.


315 Gross and Microanatomy 4 (3-3) Prereq one semester Bio S. Gross and microscopic anatomy of the human body.

316 Human Embryology 3 Rec Zool 315. Basic aspects of human development with emphasis on congenital defects.

320 Principles of Animal Development 4 (3-3) Prereq GenCB 301. Experimental analyses of development and descriptive and comparative examination of embryology; emphasis on the chordates.


324 Comparative Vertebrate Anatomy 4 (2-6) Prereq Bio S 104. Evolution of vertebrates and their organ systems; correlation of structural modification with function.


331 Current Debates on the Environment 1 Prereq Bio S course. Discussion of contentious and contemporary environmental issues from biological, social, economic and political perspectives.

350 (251) Comparative Physiology 4 (3-3) Prereq Bio S 104. Analysis of systems and integrative physiology with an emphasis on evolutionary adaptation among mammalian and non-mammalian vertebrates.

352 Cell Physiology 3 Prereq Bio S 104, organic chem; Rec c/l in Zool 452. Function and control at the cell-tissue level.

353 Mammalian Physiology 4 (3-3) Prereq Bio S 104; Rec c/l in organic chemistry. Function and control at the organ-organismic level with emphasis on mammals, including humans.

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

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

395 Seminar II 1 May be repeated for credit; cumulative maximum 4 hours. Training in abstracting and reporting recent and classical research in zoology.

405 Principles of Organic Evolution 3 Prereq GenCB 301. The evolutionary processes that influence adaptation, population differentiation, and speciation in organisms. Credit not granted for both Zool 405 and 505.

407 [B] Biology of Women 3 Prereq Bio S 102, 103, or 298; junior standing; completion of one Tier I and two Tier II courses in appropriate area of coherence. Biological basis of body function, role of medical technology in health care of women, impact of social and cultural perspectives of female role.

410 Marine Ecology 3 Prereq 6 hours of physical and/or biological science. Marine environments: their ecology, role in human development, and hazards to their well being.

411 Limnology 4 (2-2) Prereq general ecology. Physical, chemical, and biological features of lakes and streams. Field trips required. Cooperative course taught by UI (Fish 415), open to WSU students.


414 Fish Ecology 2 Principles regulating density of fishes; interrelationships of fishes; responses of fishes to environmental stress. Cooperative course taught by UI (Fish 413), open to WSU students.

416 Principles of Fisheries Management 4 (3-3) Same as NATRS 416.


421 Vertebrate Histology and Organology 4 (2-6) Prereq Bio S 103 or Zool 251. Microscopic anatomy of tissues and major mammalian organs. Cooperative course taught by UI (Zool 427), open to WSU students.


426 Population Analysis 1 Same as NATRS 426. Credit not granted for both Zool 426 and 526.


429 Population Theory 1 Same as NATRS 429. Credit not granted for both Zool 429 and 529.


443 Insect Ecology 3 (2-3) Same as Entom 443.

445 Nongame Management 2 Rec Zool 423, 428. Review of principles, methodology, and concepts applied to management and conservation of nongame wildlife in relation to current land-use practices. Cooperative course taught by UI (WIL 445), open to WSU students.


450 Introduction to Cell Biology 3 Same as GenCB 450.

451 Comparative Vertebrate Reproduction 3 Prereq Bio S 104. Physiology of major events in reproductive cycles of vertebrates, emphasizing mammals. Credit not granted for both Zool 451 and 551. Cooperative course taught by UI (Zool 411), open to WSU students.

452 [M] Cell Biology Laboratory 2 (1-3) or 3 (1-6) Same as GenCB 452.

460 Environmental Physiology 3 Prereq Zool 350 or 353. Individual and evolutionary adaptations to changing environments with emphasis on recent literature. Credit not granted for both Zool 460 and 560.

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Department of Zoology

480 [M] Writing in Biology 2 Discussion and practice in relating thinking and writing; popular and professional communication in biology.

486 Marine Invertebrate Communities 1 (0-3) Prereq Bio S 104. One-week field trip to Shannon Point Laboratory to gain first-hand experience with several marine habitats. Cooperative course taught jointly by WSU and UI (Zool 486).

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


497 Instructional Practicum V 1-4 May be repeated for credit; cumulative maximum 6 hours. Academic traineeship in laboratory teaching and tutoring.

498 Career Experience Internship V 1-4 May be repeated for credit; cumulative maximum 4 hours. By interview only. Experience in work related to specific career area. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

505 Principles of Organic Evolution 3 Graduate-level counterpart of Zool 405; additional requirements. Credit not granted for both Zool 405 and 505.

506 Generation, Degeneration, Regeneration in the Nervous System 2 Plasticity and specificity of neural connections of invertebrates and vertebrates. Cooperative course taught by UI (Zool 505), open to WSU students.

511 Principles of Systematic Biology 3 (2-3) Prereq Bio S 104; 10 additional hours Zool. Principles, methods, and literature of systematic biology; speciation mechanisms; concepts and problems of species and higher taxa; codes of nomenclature.

512 Aquatic Pollution Ecology 3 Prereq Zool 411 or by interview only. Principles and working examples of the ecology of polluted aquatic streams and lake habitats. Two one-day field trips. Cooperative course taught by UI (Fish 512), open to WSU students.

513 Advanced Fishery Management 3 Compensation as a phenomenon basic to exploration; yield in numbers and weight; models of yield; stock recruitment functions; economic yield; application of theory of physical and economic yield to empirical examples in commercial and sport exploitation. Field trip required. Cooperative course taught by UI (Fish 510), open to WSU students.

515 Fish Physiology 4 By interview only. Principles and methods used to study vital organs, organ systems, growth, and reproduction of fishes; emphasis on osmoregulation, metabolism, endocrinology, and respiration. Cooperative course taught by UI (Fish 511), open to WSU students.

516 Fish Genetics 2 Same as GenCB 516.

520 Conservation Genetics 2 Same as GenCB 520.

521 Quantitative Genetics 2 Same as GenCB 521.

526 Population Analysis 1 Same as NATRS 526. Credit not granted for both Zool 426 and 526.

529 Population Theory 1 Same as NATRS 529. Credit not granted for both Zool 429 and 529.

530 General and Comparative Neurophysiology 4 Same as Neuro 530.

535 Biogeography 2 Prereq 300-400 level course at organismal level. Principles underlying patterns of plant and animal distribution in space and time.

538 [M] Animal Behavior 3 (2-3) Graduate-level counterpart of Zool 438; additional requirements. Credit not granted for both Zool 438 and 538.

543 Predator-Prey Dynamics 1 Same as Entom 543.

548 Evolutionary Ecology 3 Rec Bio S 372; Zool 405. Evolutionary dynamics of natural populations and the co-evolution of species. Cooperative course taught by WSU; open to UI students (WLF 548).

551 Comparative Vertebrate Reproduction 3 Graduate-level counterpart of Zool 451; additional requirements. Credit not granted for both Zool 451 and 551. Cooperative course taught by UI (Zool 511), open to WSU students.

552 Comparative Physiology 3 Prereq general physiology course. Adaptations of excretion, respiration, circulation, and metabolism in vertebrate and invertebrate animals.

555 General and Cellular Physiology 4 (3-3) Same as V Ph 555.

557 Advanced Mammalian Physiology 4 Same as V Ph 557.

560 Environmental Physiology 3 Prereq Zool 350 or Zool 353. Graduate-level counterpart of Zool 460; additional requirements. Credit not granted for both Zool 460 and 560. Cooperative course taught by WSU; open to UI students (WLF 560).

573 Cellular and Molecular Aspects of Development 3 Prereq BC/BP 364, GenCB 450 or Zool 520. Current biochemical and ultrastructural research in developmental biology.

583 Physiological Interactions in Predator-Prey Relations 1 Same as Entom 583.

589 Advanced Topics in Zoology V 1-3 May be repeated for credit; cumulative maximum in Zool 589, 590 - 10 hours. Recent advances in zoology.

590 Advanced Topics in Zoology V 1-3 May be repeated for credit; cumulative maximum in Zool 589, 590, 10 hours. Recent advances in zoology.

591 Topics in Ecology and Evolution V 1-3 May be repeated for credit; cumulative maximum 6 hours. Current topics in ecology, population, biology, evolution, behavior, systematics, and biogeography.

592 Advanced Topics in Cell Biology V 1-3 May be repeated for credit; cumulative maximum 7 hours. Same as GenCB 592.

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

594 Advanced Topics on Vertebrate Form and Function V 1-3 May be repeated for credit. Analysis of animal structure and function emphasizing the evolution of complex systems; constructional morphology; ecomorphology; phylogenetics; heterochrony; size and shape.

595 Seminar II 1 May be repeated for credit; cumulative maximum 8 hours. 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.

600 Special Projects or Independent Study Variable credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination Variable credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination Variable credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination Variable credit. S, F grading.
## Permanent Faculty

<table>
<thead>
<tr>
<th>Name</th>
<th>Title/Institution</th>
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APPENDIX—Academic Regulations

ADMISSION REQUIREMENTS

1. GENERAL REQUIREMENTS
(a) To be eligible for admission to Washington State University, an applicant must be a high school graduate, or its equivalent.
(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) Exceptions to the admission requirements may be made only by the Admissions Subcommittee of the Academic Affairs Committee.
(d) Anyone seeking admittance to the Graduate School must follow procedures in the Graduate School Policies and Procedures Manual available in the Graduate School.

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). On the basis of these three criteria, the most qualified applicants are offered admission.

Applicants are required to submit a high school transcript showing completion of the following courses:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Four years (including at least one year each of composition and literature).</td>
</tr>
<tr>
<td>Mathematics</td>
<td>Three years (normally one year of geometry and two years of algebra including an introductory component of trigonometry).</td>
</tr>
<tr>
<td>Science</td>
<td>Two years (including at least one year of laboratory).</td>
</tr>
<tr>
<td>Social Science</td>
<td>Three years (including at least one year of history).</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>Two years of a single foreign language or approved sign language.</td>
</tr>
</tbody>
</table>

Beginning with the fall term, 1992, freshmen applicants must complete a year of fine, visual and performing arts or other academic electives. Applicants from unaccredited high schools may be required to pass validating examinations.

3. REGULAR ADMISSION OF FRESHMEN 21 YEARS OF AGE OR OLDER. A student 21 years of age or older who is seeking initial entry at the freshman level beginning with the fall term 1989, may be offered regular admission if, as a minimum, the student presents a score of at least 700 on the SAT, 15 on the ACT, or 83 on the Washington Pre-College test taken prior to June 1, 1989.

Washington State University Policy on Admission Exceptions. Washington State University will use its alternate admission standard to support its land grant tradition and its values of excellence, diversity, and individual importance. To that end, WSU has identified several special populations of students for whom alternate admissions standards may be applied in order to maintain a vibrant, diverse student body. These categories of students include: ethnic minorities, women, non-traditional/adults, students of disability, students with special talents and interests, and students who show evidence of extraordinary motivation or circumstances.

ADVANCED STANDING

4. TRANSFER REQUIREMENTS
(a) Applicants with at least 27 semester hours of transferable credit from a regionally accredited post-secondary institution must present a grade point average of at least 2.00.
(b) Applicants with less than 27 semester hours of transferable credit will be considered for admission if they meet the freshman requirements and the 2.00 grade point average transfer requirement.

5. DOCUMENTS REQUIRED. An applicant for admission to advanced standing, in addition to meeting the requirements for entrance to the freshman class, shall present: (a) an application; (b) a statement of honorable dismissal; (c) a complete official transcript from each higher institution attended; and (d) a record of high school work if it is not included in the college transcript. All advanced standing shall be tentative pending the satisfactory completion of at least one semester’s work.

6. TRANSFER CREDIT. (See Rule 114, Requirements for Undergraduate Degree.)
(a) Colleges and universities must be regionally accredited for transfer credit to be awarded.
(b) Ninety semester hours shall be the maximum allowed by transfer toward a four-year degree, and 120 semester hours shall be the maximum amount allowed by transfer toward a five-year degree.
(c) The maximum transfer credit allowed from regionally accredited two-year or community colleges shall be 60 semester hours toward a baccalaureate degree irrespective of when those hours were earned provided that the courses are essentially equivalent to those at WSU.
(d) Students may be allowed additional credit from a regionally accredited two-year or community college under the following conditions:
   (1) The student has been offered admission by WSU with at least 90 quarter (60 semester) hours of transferable lower-division credit already completed.
   (2) The student’s WSU academic advisor has indicated that additional lower-division course work is required to meet specific general education, college or departmental requirements for a WSU degree.
   (3) Courses to meet these general education, college or departmental requirements are not offered at the WSU campus to which the student has been admitted or at the student’s delivery site.
   (4) No more than 20 total quarter (13 total semester) hours of additional lower-division credit will be allowed toward a baccalaureate degree earned by a student enrolled at a WSU campus or delivery site which does not offer the required course(s).
   (5) A student may not petition for additional lower-division credit earned prior to the offer of admission to WSU.
   (6) The petition must be approved and on file with the Registrar’s Office at WSU Pullman before completing the additional course work; if not approved in advance, additional course work will not be allowed.
   (7) The additional credit will not be posted on the WSU transcript until an official transcript from the regionally accredited two-year or community college(s) has been received by the Admissions Office at WSU Pullman.
   (e) Two full years of credit and completion of lower-division General Education Requirements will be granted to students who have been awarded the A.A. or A.S. degree from a Washington community college or the Associate of Arts—Oregon transfer degree from an Oregon community college which has adopted a general education program comparable to WSU General Education requirements.

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 NON-ACCREDITED INSTITUTIONS. Special examinations for advanced standing credit for work done in non-accredited institutions will be allowed only by permission of the Admissions Subcommittee.

15. CREDIT BY EXAMINATIONS. Subject to standards established in consultation with academic departments concerned, credit may be granted to entering or enrolled undergraduate students via various means including external examinations, institutional examinations, and approved military service schools. Credits by examination shall yield no grade points. Such credits may partially fulfill General Education Requirements for graduation. External examinations will include but not be limited to:
   Advanced Placement (AP) Program examinations of the College Entrance Examinations Board; general and subject College Level Examination Program (CLEP); and the Washington Pre-College Test Program (WPCT).
   (a) Advanced Placement Program. Credit for the AP examinations passed with a score of three or higher on a five-point scale will be granted in an amount equal to the introductory course or courses in the particular discipline tested.

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College Level Examination Program (CLEP)

1. 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 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.

2. Students with junior standing (60 semester credits or more) are not eligible for credit through CLEP examinations. Contact the Office of Admissions for specifics.

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 in which they have audited, or in which they have received a final grade. Upper-division students may not receive credit by challenge examination in lower-division courses in their major field. Undergraduate students may not receive credit by challenge examination in any course prerequisite to a course in which they are enrolled or have received a final grade. The maximum credit for challenge examinations is 30 semester hours unless permission is obtained from the student’s academic dean. The fee for all challenge petitions is $147 per course.

Military Credit. Credit will be granted for satisfactory completion of:

1. Military service schools in the amount recommended by the American Council on 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

PERMISSION TO AUDIT. An auditor is a class visitor permitted on a space-available basis to observe class discussions but not take examinations or consume the instructor’s time. Attendance in class beyond three visitations requires official approval on the Request for Permit to Audit card. Students may seek permission, after the start of classes, to audit a lecture course by securing the approval of the class instructor. Those wishing to audit or change from credit to audit must pay the appropriate fee and submit the signed audit card to the Office of 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.

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.”)

MAKE-UP HOURS FOR UNIVERSITY HOLIDAYS. The presence of 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 Time Schedule and also in the course syllabus.

CLASS STANDING OF STUDENTS

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

CREDIT DEFINITION. Academic credit is a measure of the total time commitment required of a typical student in a particular course of study. For the WSU semester system one semester credit is assigned for a minimum of 45 hours of total time commitment. This time commitment includes: 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 time commitment, based on a fifteen-week semester and a traditional campus setting, 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) independent study—three hours of independent work per week for each credit hour; 4) studio—two hours of studio work per week for each credit hour; 5) ensemble—four hours of ensemble work per week for each credit hour. For courses to be given during a different time frame than the fifteen-week semester or in a different format than the traditional, the course proposal must clearly delineate how the total time commitment is determined to justify the credit hours requested for the course.

HIGH SCHOOL COOPERATIVE PROGRAM. High school students may enroll as part-time students 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. If for high school credit, a special fee applies.

WORK FROM HIGH SCHOOLS, BUSINESS COLLEGES, AND COLLEGES AND UNIVERSITIES WITHOUT REGIONAL ACCREDITATION. No university credit shall be given for work from high schools, business colleges, or colleges and universities without regional accreditation.

CREDIT FOR 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.
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 made available to students prior to certification. Students are referred to the nursing and pharmacy offices for specific requirements.

43. In evaluating admission credentials of transfer students or when considering reinstatement of former WSU students whose cumulative g.p.a. was below a 2.00 when they were dropped for low scholarship, all work completed prior to a specified date, not less than four years prior to the time of application, may be disregarded and all credit withheld. After 15 semester hours of satisfactory work at WSU following admission or reinstatement, the student may petition to restore some of the credits previously withheld. Only 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. Requests for admission or reinstatement and petitions for credit restoration will be considered by the Academic Advising and Reinstatement Subcommittee for former WSU students and by the Admissions Subcommittee for transfer students.

CONDUCT

45. Students, no matter where they reside, while enrolled in the institution, are responsible for their conduct to the President and the faculty, acting usually through the Vice Provost for Student Affairs or the University Conduct Committee or both. Students are expected to show due respect for order, morality, and the rights of others. Students who fail to conduct themselves properly are subject to discipline, which may extend to temporary or permanent removal from the institution.

ENROLLMENT, REGISTRATION, DROPPING COURSES, AND WITHDRAWALS

47. PLACEMENT TESTS. All students will be required to take the 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 Program courses may be taken on a pass, fail basis only with the permission of the Honors Program Director.

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 assistantship minimum hour requirements. There is no limit on the number of hours a graduate student may take on a pass, fail basis.

Allowances for transfer students are as follows: Transfer status upon entering WSU Pass, fail Allotment

<table>
<thead>
<tr>
<th>Credits</th>
<th>Transfer Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-4</td>
<td>six courses</td>
</tr>
<tr>
<td>4.5-59</td>
<td>five courses</td>
</tr>
<tr>
<td>60-74</td>
<td>four courses</td>
</tr>
<tr>
<td>75-89</td>
<td>three courses</td>
</tr>
<tr>
<td>90 and above</td>
<td>two courses</td>
</tr>
</tbody>
</table>

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), 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 g.p.a.; however, F grades earned by pass, fail enrollees will be included in g.p.a. computations. Departments and programs may deny their majors permission to take, on a pass, fail basis, courses in their major field or courses needed to meet departmental requirements. Departments have the prerogative of requesting, from the Office of the Registrar, the letter grade for courses a prospective major has taken on a pass, fail basis. Departments and programs may refuse to
accept courses needed to meet the above requirements if the courses were completed on a pass, fail basis before the student was accepted into the department or program.

52. PREREQUISITE COURSES. All prerequisites shall be satisfactorily completed before the student may register in a course. The instructor may waive the prerequisite in the case of a student who has demonstrated competence or who has had academic experience equivalent to that represented by the prerequisite.

53. CERTIFICATION OF A MAJOR. An undergraduate may declare an academic major upon matriculation to the university. Upon completion of 24 hours, and meeting department, program, or school certification requirements, a student may certify in an academic major with the approval of the appropriate academic department, program, or school, and upon notification to the Student Advising and Learning Center. A student who has completed 60 semester hours must certify a major as a condition to further enrollment with approval as above. Transfer students with 60 or more semester hours of transfer credit who are undecided about a major may, upon notification of the Student Advising and Learning Center, spend one semester being advised within the Student Advising and Learning Center. Departments, programs, or schools may require additional criteria beyond the minimum 24 hours for certification and a grade point average higher than the minimum of 2.00.

54. MINOR OR SECOND MAJOR. A student who has completed 60 semester hours may certify a minor or second major with the approval of the department offering the second major or minor. The student should consult with the department concerning hours and grade point requirements and an approved schedule of studies to meet such requirements.

A second major requires completion of departmental and college requirements for the major exclusive of General Education Requirements.

A minor requires a minimum of 16 semester hours, half of which must be in upper-division work. Upon completion of the requirements, the department will notify the Registrar’s Office, and the minor or second major will be posted on the student’s permanent record (transcript).

55. CHANGE OF MAJOR. A student may change from one department to another only on approval of the chairpersons of the departments or deans concerned.

56. RECERTIFICATION. A certified major who becomes deficient and is dropped 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 retention in the university (2.00) except in those departments which have limitations on certification.

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. A re-enrollment fee will be assessed those who pay tuition and fees after they have been disenrolled for nonpayment.

66. ADDING A COURSE. Students may add course enrollments only through the Student Advising and Learning Center. A student who has completed 60 semester hours must notify the Registrar’s Office, and the minor or second major will be posted on the student’s permanent record (transcript).

70. WITHDRAWAL FROM THE INSTITUTION. Students who wish to withdraw from the institution must initiate the withdrawal through the Office of Student Affairs at WSU Pullman or the Student Services Office at WSU Spokane, WSU Tri-Cities or WSU Vancouver, or through the Extended Degree Program Office.

Students wishing to withdraw during the first four weeks of the semester will have their permanent records marked “withdraw (date),” with the date of withdrawal recorded under “withdrew (date),” and a grade of W will be recorded for each course enrollment (end of the 15th week) will have their permanent records marked “withdraw (date),” and a grade of W will be recorded for each course enrollment.

(a) Students withdrawing during the first four weeks of the semester will have their permanent records marked “withdraw (date).” (Course enrollments will not be recorded.)

Students withdrawing after the fourth week through the last day of instruction (end of the 15th week) will have their permanent records marked “withdraw (date),” and a grade of W will be recorded for each course enrollment.

(c) Students on academic probation during the semester of their withdrawal must obtain permission of Academic Standing to re-enroll.

ATTENDANCE

71. ADMISSION TO CLASSES. Instructors shall not permit a student to be enrolled in a class or admit a student more than three times as a visitor without an official enrollment notice.

72. CLASS ATTENDANCE DURING THE FIRST WEEK TO ENSURE ENROLLMENT. Students who have not attended class and laboratory meetings during the first week of the semester may be dropped from the course by the department. (Students should not assume that they have been dropped without verification from the department or Registrar’s Office.) Students 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.

73. ABSENCES. Absences impede a student’s academic progress and should be avoided.

(a) An instructor shall report flagrant cases of absences in any course to the chairperson of the student’s major department or the Vice Provost for Student Affairs.

(b) UNIVERSITY SPONSORED. Any student who is required to participate in off-campus, university-sponsored activities such as field trips, musical performances, judging teams, intercollegiate athletic events, etc., should obtain an official Class Absence Request form from the faculty or staff.
member supervising the off-campus activity. The form must contain specific information concerning the activity and date, be signed by the supervising faculty or staff member, and be submitted by the student at least one week in advance to the individual instructors of the student’s classes. It is requested that a student not be penalized for absence from class provided a properly signed Class Absence Request form has been filed with the instructor prior to the absence. These university sponsored absences are subject to an instructor’s attendance policy and are not intended to imply additional acceptable absences. In all instances, it is the student’s responsibility to make up all work missed. Problem cases should follow the Academic Complaint Procedures, Rule 104.

(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 hoped that the instructor will 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 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.

75. FINAL EXAMINATION SCHEDULE. The final examination schedule will be determined before the start of each semester and published in the semester time schedule 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 7:00 p.m. and 8:30 to 9:30 p.m., Monday through Friday, with the exception of Monday morning and Friday evening. 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. Proposed examination dates must be submitted to the Registrar’s Office not later than the first week of each semester so that a schedule for the entire semester may be circulated and posted. 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. (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 study or ensemble.

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, accommodation of these religious observances may be necessary in the administration of examinations. It is the policy of the university to provide reasonable accommodation consistent with the fair, efficient and secure administration of its programs. When tests or examinations fall on days objectionable to a student because of religious beliefs, the student should contact the instructor as soon as possible. The instructor may require the student to submit a concise, written statement of the reasons for the request. If the request appears to be made in good faith, the instructor should make alternate arrangements for administration of the examination or test, considering the integrity of the testing process, and fairness to all the students. If the instructor believes the request not to be in good faith, or if the instructor and the student are unable to agree on arrangements, the student or the instructor should seek the assistance of the department chair, cognizant dean, or the Vice Provost for Academic Affairs, in that order. The student may also contact the University Ombudsman. Students should understand that fairness in the examination process is an important consideration in the educational process and that they 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 4:00 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 4:00 p.m. on the second working day following the last day of Summer Session. Departments may be requested to submit final grades for summer courses earlier than the official submission deadline to facilitate grade reporting to students.)
GRADES AND GRADE POINTS

90. GRADES AND GRADE POINTS. Washington State University uses letter grades and the four (+) point maximum grading scale. The grade A is the highest possible grade, and grades below D are considered failing. Plus (+) or minus (-) symbols are used to indicate grades that fall above or below the letter grades, but grades of A+ and D- are not used. For purposes of calculating grade points and averages, the plus (+) is equal to .3 and minus (-) equals .7 (e.g., a grade B+ is equivalent to 3.3 and A- is 3.7). A student’s work is normally rated in accordance with the following definitions:

90a. A. Student work demonstrates consistently excellent scholastic performance; thorough comprehension; ability to correlate the material with other ideas, to communicate and to deal effectively with course concepts and new material; reliability in attendance and attention to assignments.

90b. B. Student work demonstrates superior scholastic performance overall, reliability in attendance, and attention to assignments; may demonstrate excellence but be less consistent than the work of an A student.

90c. C. Student work demonstrates satisfactory performance overall, as well as reliability in attendance, and attention to assignments.

90d. D. Student work demonstrates minimal, barely passing performance overall; limited knowledge of subject matter.

90e. F. Student work demonstrates unsatisfactory performance and comprehension or unfulfilled requirements. The grade is failing.

90f. S. (Satisfactory.) Grade given upon satisfactory completion of courses numbered 499, 600, 700, 702, 800, special examinations (Rule 15) and other courses duly authorized for S, F grading by the Faculty Senate. (Courses approved for S, F grading are footnoted in the Fall and Spring Time Schedules.) A, S, or F grades only are used to report physical education activity grades. 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.) The term is used to indicate that a grade has been deferred. It is for students who for reasons beyond their control are unable to complete their work on time. Undergraduates or graduates who receive an I grade in an undergraduate course (100-499) have up to the end of the ensuing year to complete the course, unless a shorter interval is specified by the instructor. If the incomplete is not made up during the specified time or the student repeats the course, the I is changed to an F. (See Rule 34.) Faculty are required to submit an Incomplete Grade Report (IGR) to the departmental office with every I given. The IGR must specify conditions and requirements for completing the incomplete, as well as any time limitations less than one year.

90i. W. This is the term to be used if the student has filed, in the Registrar’s Office, official notice of a withdrawal from the course prior to the end of the 9th week, or withdrew passing 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. An X grade may also be used when no final grade is reported due to instructor’s illness or absence from town.

92. GRADE RECORDS. Class grade records (the records from which final grades for a given class are determined) are university records which must be maintained for five years after the end of the term. Department chairs or directors are responsible for identifying appropriate storage location, which may include the instructor’s campus office. Both the chair or director or their designees and the instructor shall have ready access to these records.

93. RETENTION OF FINAL EXAMINATIONS, FINAL PROJECTS, AND FINAL PAPERS. Final examinations, final projects, and final papers are university records which must be maintained for one year after the end of the term, unless they are returned directly to the student. Department chairs or directors are responsible for identifying appropriate storage location, which may include the instructor’s campus office. Both the chair or the director or their designees and the instructor shall have ready access to these final examinations, final projects, and final papers.

98. CORRECTION OF GRADE ERRORS. An instructor may not change a grade after it has been filed with the Registrar, except in the case of clerical error, which the instructor may correct by so certifying to the Registrar. Such change must be approved (signature required) by the chairperson of the department in which the course was offered.

99. GRADUATE STUDENT GRADES. On a program leading to an advanced degree, graduate students must attain a minimum grade point average of 3.00 on their graduate programs and a minimum grade point average of 3.00 in all 300-400-level and graduate courses. No grade below C is accepted in any course for graduate credit.

100. THE GRADE POINT SYSTEM

A provides 4.0 grade points per credit hour.
A- provides 3.7 grade points per credit hour.
B+ provides 3.3 grade points per credit hour.
B provides 3.0 grade points per credit hour.
C+ provides 2.7 grade points per credit hour.
C provides 2.3 grade points per credit hour.
B- provides 2.0 grade points per credit hour.
S provides 1.7 grade points per credit hour.
D+ provides 1.3 grade points per credit hour.
D provides 1.0 grade points per credit hour.
F provides no credit or grade points.

For purposes of g.p.a. credits attempted are calculated in g.p.a.
P 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 4:00 p.m. two working days following the last day of final examinations.

104. ACADEMIC COMPLAINT PROCEDURES. Students having complaints relative to instruction or grading should refer them first to the instructor, and, if not resolved, then to the chairperson of the department in which the course is offered. The chairperson, if not able to resolve the problem to the student’s satisfaction, will refer the complaint, presumably with the chairperson’s written impressions, to the dean of the college. The student is encouraged then to go directly to the dean of the college. The Vice Provost for Student Affairs Committee, or the Provost are always available for any complaint not resolved to the student’s satisfaction. At the branch campuses, the procedure is identical except the academic area coordinator may substitute for the department chair and the campus dean may substitute for the college dean.

GRADUATION

106. APPLICATION FOR DEGREE (TO-DO LIST). Application for a bachelor’s or DVM degree should be made at the Registrar’s Office near the end of the junior year. The Registrar will furnish candidates with records of their grade points and the hours completed to date, and lists of major and General Education Requirements yet to be completed. The chairperson of the department is held responsible for checking all departmental requirements, including prerequisites for all courses and the courses required in other departments. A graduation fee must be paid at the time of application.
108. STUDENT RESPONSIBILITY FOR GRADUATION. Together with the advisor, the student plans the program of study each semester. However, the written curriculum requirements described in the bulletin and catalog supplements are binding, and no advisor may waive or alter them. The student has the ultimate responsibility for meeting university, college and departmental graduation requirements.

109. PETITIONS. Students may petition for a change in graduation requirements or academic regulations by obtaining the signature of their department chairperson and dean on the appropriate form available in the Registrar’s Office.

114. REQUIREMENTS FOR UNDERGRADUATE DEGREES
(a) The four-year degree (BA, BS, B FA, B Lib A, B Mus)
1. Meet the General Education Requirements for Graduation.
2. Earn twice as many grade points as the number of hours enrolled in graded course work, in this or any institution for which a grade has been received
3. Earn twice as many grade points in the major subject as the number of hours enrolled 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 PEA CT (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 exclusive of credit earned at two-year or community colleges; 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.
(b) The five-year degree (B Arch, BS Cst M, B Phar)
1. Meet requirements 1, 2, 3, and 7 listed under (a) above.
2. Complete any of the five-year programs.
3. Complete the fifth 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.
4. Earn a minimum of 150 semester hours of credit, no more than 10 of which may be from PEA CT (Physical Education Activity) courses. (See Rule 6.)

115. REQUIREMENTS FOR THE DOCTOR OF VETERINARY MEDICINE DEGREE (DVM)
(a) Complete the four-year professional program.
(b) Earn a baccalaureate degree from an accredited institution.
(c) Earn twice as many grade points as the number of hours required in the professional program.

116. REQUIREMENTS FOR MASTER’S DEGREES
(a) Spend not less than the equivalent of two semesters in residence (except for external programs approved by the Graduate Studies Committee).
(b) Earn not less than 30 semester hours of credit with a minimum of 21 semester hours of course work for a thesis degree program or 26 semester hours of course work for a nonthesis degree program.
(c) Earn a minimum grade point average of 3.00 on a graduate program in all upper-division and graduate course work completed for the master’s degree.
(d) Earn a minimum grade point average of 3.00 for all course work taken as a graduate student.
(e) Successfully complete graduate examinations.

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 for the Doctor of Arts 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 requires a minimum of 120 semester hours. For each additional bachelor’s degree, the student must complete an additional 30 semester hours and satisfy all requirements of the second degree program.

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.

123. LIMIT ON FLEXIBLE ENROLLMENT CREDIT. A student working for a degree at Washington State University shall be limited on flexible enrollment course credit to not more than 25% of the total hours required for any undergraduate degree.

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 4:00 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 an overall grade point of 3.75 while enrolled in at least 9 graded hours in a single semester at Washington State University.
(b) By achieving a cumulative grade point average of 3.50 based on at least 15 cumulative hours of graded work at Washington State University.

137. RECOGNITION FOR SELECTED BACCALAUREATE DEGREE CANDIDATES. Candidates for baccalaureate degrees who have completed at least 30 hours of graded work (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 Program 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 g.p.a. 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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Rules are indexed by subject. Allowances have been made in number sequence for additional rules.

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