CATALOG SUPPLEMENT 1982-1983

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<td>Sept. 16-17</td>
<td>Sept. 15-16</td>
</tr>
<tr>
<td>Classes begin, Monday</td>
<td>Sept. 20</td>
<td>Sept. 19</td>
</tr>
<tr>
<td>Midsemester grades due in Registrar’s Office, 8:00 a.m., Friday</td>
<td>Nov. 5</td>
<td>Nov. 4</td>
</tr>
<tr>
<td>Thanksgiving vacation begins, 12:00 noon, Saturday</td>
<td>Nov. 20</td>
<td>Nov. 19</td>
</tr>
<tr>
<td>Thanksgiving vacation ends, 8:00 a.m., Monday</td>
<td>Nov. 29</td>
<td>Nov. 28</td>
</tr>
<tr>
<td>Christmas vacation begins, 12:00 noon, Saturday</td>
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<td>Dec. 17</td>
</tr>
<tr>
<td>Christmas vacation ends, 8:00 a.m.</td>
<td>Jan. 3 (Mon.)</td>
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</tr>
<tr>
<td>Final examinations, Saturday through Friday</td>
<td>Jan. 22-28</td>
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</tr>
<tr>
<td>Final grades due in Registrar’s Office, 8:00 a.m., Monday</td>
<td>Jan. 31</td>
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</tr>
<tr>
<td><strong>SECOND SEMESTER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registration, Thursday and Friday</td>
<td>Feb. 3-4</td>
<td>Feb. 2-3</td>
</tr>
<tr>
<td>Classes begin, Monday</td>
<td>Feb. 7</td>
<td>Feb. 6</td>
</tr>
<tr>
<td>Midsemester grades due in Registrar’s Office, 8:00 a.m., Friday</td>
<td>Mar. 25</td>
<td>Mar. 23</td>
</tr>
<tr>
<td>Spring vacation begins, 12:00 noon, Saturday</td>
<td>April 2</td>
<td>Mar. 31</td>
</tr>
<tr>
<td>Spring vacation ends, 8:00 a.m., Monday</td>
<td>April 11</td>
<td>April 9</td>
</tr>
<tr>
<td>Final examinations, Saturday through Friday</td>
<td>May 28-June 3</td>
<td>May 26-June 1</td>
</tr>
<tr>
<td>Commencement, 10:00 a.m., Saturday</td>
<td>June 4</td>
<td>June 2</td>
</tr>
<tr>
<td>Final grades due in Registrar’s Office, 8:00 a.m., Monday</td>
<td>June 6</td>
<td>June 4</td>
</tr>
<tr>
<td><strong>SUMMER SESSION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registration, Monday</td>
<td>June 20</td>
<td>June 11</td>
</tr>
<tr>
<td>Classes begin, Tuesday</td>
<td>June 21</td>
<td>June 12</td>
</tr>
<tr>
<td>Independence Day (a holiday)</td>
<td>July 4 (Mon.)</td>
<td>July 4 (Wed.)</td>
</tr>
<tr>
<td>Six-week session ends, Friday</td>
<td>July 29</td>
<td>July 20</td>
</tr>
<tr>
<td>Eight-week session ends, Friday</td>
<td>August 12</td>
<td>August 3</td>
</tr>
<tr>
<td>Final grades due in Registrar’s Office, 8:00 a.m., Monday</td>
<td>August 15</td>
<td>August 6</td>
</tr>
</tbody>
</table>
SELECTIVE MAJOR CERTIFICATION REQUIREMENTS

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 administration, communications, computer science, construction management, economics, engineering, hotel administration, interior design, landscape architecture, nursing, pharmacy, veterinary medicine, etc., are unable to accept all qualified students. In these situations, selection of the most highly qualified students will be made up to the enrollment limits in the specific program.

ENROLLMENT RESTRICTIONS. Many 300- and 400-level courses in these departments are open to certified majors only. These restrictions are listed under the COURSE DESCRIPTION section of this supplement and in the Catalog.

The following certification requirements, reviewed and approved by the Catalog Subcommittee and Provost during spring semester, are in effect for fall 1982.

Architecture

Selection of the most qualified students is based on satisfaction of the minimum requirements for admission (i.e., 60 semester hours and completion of courses listed on the "Academic Record" form), review of portfolio material, and overall grade point. A detailed list of requirements may be obtained from the department.

Business Administration

To be eligible to certify as a business or hotel administration major, a student must have earned at least 40 semester hours of credit on graded course work and at least 6 hours of business core courses, and meet current standards of (1) cumulative g.p.a., and (2) g.p.a. based on at least 15 hours business core courses from: B Law 210, Accmg 230 and 231, QMeth 215, Math 201 and 202, Econ 102 and 203, Mgt 301, Fin 325, Mktg 330. The 1982-83 academic year standards are published in full at the back of this supplement.

Communications

To certify a major in Communications, a student must have earned at least 45 semester hours and meet the following minimum requirements:

- C in Jour 225 or Bdcst 245
- C in the introductory course in the major sequence (Adver 280, Bdcst 250, Cine 323, Jour 125, P R 312)
- 2.7 cumulative g.p.a. in communications courses
- 2.5 cumulative g.p.a. in all courses

Students transferring into the department with 55 or more hours are urged to complete Communications certification requirements within two semesters.

Specific requirements for other departments and colleges not listed here can be found in the 1980-82 Catalog.

Computer Science

Students planning to major in Computer Science must complete: Cpt S 150, 154, 250; Math 171, 172; E E 214; and 3 hours GUI in communication proficiency [W]. Consideration will be given to applicants based on (1) g.p.a. in the courses listed above and (2) cumulative g.p.a. Details may be obtained from the department.

Construction Management

Students wishing to be considered for certification into Construction Management must fulfill the following minimum requirements:

1. Earn at least 40 semester hours, including those course listed on the "Academic Record" form.
2. Submit the Academic Record form and other required data by January 15.
3. Complete Arch 101, Phys 101, and Accmg 230 with a grade of C or above.

Selection of the most qualified students for certification is based on the minimum requirements listed above plus the cumulative g.p.a. Additional details may be obtained from the Department of Architecture.

Economics

To be eligible to certify as a major in Economics, a student must have earned at least 40 semester hours of credit on graded course work and at least 6 hours of economics core courses and meet current standards of (1) cumulative g.p.a., and (2) g.p.a. based on at least 9 hours economics core courses from Econ 102, 201, 203, 301, and 320, Math 201 and 202, QMeth 215. (See details in the back of this supplement.)

Engineering

Pre-engineering. Students are eligible for certification into pre-engineering upon completion of (1) 30 semester hours and Math 171, 172, Chem 105, and Phys 201 or Chem 106, and (2) 2.5 cumulative g.p.a. or 2.5 g.p.a. the previous semester. Attainment of the minimum g.p.a. alone does not guarantee certification into pre-engineering.

Engineering. Certification into pre-engineering does not guarantee certification into one of the engineering departments. Certification into a department will be based upon criteria established by the individual department. Contact the College of Engineering, Dean's Office, for the latest criteria for admission and certification.

Interior Design

The criteria for certification in Interior Design are current under review. Students wishing to major in Interior Design should contact the department for additional requirements.
### GENERAL UNIVERSITY REQUIREMENTS FOR GRADUATION

The updated list of GURs below replaces those listed on pp. 30-31 in the 1980-82 Catalog.

**NOTE:** Students and advisors should be aware that all GUR courses are currently under review. Watch for a revised set of GURs during the 1982-83 academic year.

The following courses have been approved to meet General University Requirements for Graduation.

### H ARTS AND HUMANITIES.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropology</td>
<td>201, 304, 336, 355</td>
</tr>
<tr>
<td>Architecture</td>
<td>120, 121</td>
</tr>
<tr>
<td>Asian American</td>
<td>Studies 315</td>
</tr>
<tr>
<td>Asian Studies</td>
<td>310, 315, 352, 374</td>
</tr>
<tr>
<td>Black Studies</td>
<td>102, 319, 320</td>
</tr>
<tr>
<td>Chicano Studies</td>
<td>220, 321, 324, 325, 340</td>
</tr>
<tr>
<td>Cinema</td>
<td>323</td>
</tr>
<tr>
<td>Communications</td>
<td>101</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>101, 104, 201, 202, 203, 204, 300, 301, 302, 303, 304, 305</td>
</tr>
<tr>
<td>Foreign Languages</td>
<td>111, 310, 355</td>
</tr>
<tr>
<td>French</td>
<td>203, 304, 315, 316, 333, 334, 350</td>
</tr>
<tr>
<td>German</td>
<td>203, 304, 315, 316, 333, 334, 350</td>
</tr>
<tr>
<td>Japanese</td>
<td>401</td>
</tr>
<tr>
<td>Russian</td>
<td>203, 304, 315, 350</td>
</tr>
<tr>
<td>Spanish</td>
<td>203, 304, 315, 316, 324, 325, 332, 335, 350</td>
</tr>
<tr>
<td>Swedish</td>
<td>303, 350</td>
</tr>
<tr>
<td>History</td>
<td>340, 342, 343, 374, 440, 441, 444</td>
</tr>
<tr>
<td>Humanities</td>
<td>100, 101, 198, 202, 204, 301, 350</td>
</tr>
<tr>
<td>Music</td>
<td>160, 362, 363, 364</td>
</tr>
<tr>
<td>Philosophy</td>
<td>101, 107, 198, 201, 220, 260, 300, 305, 310, 314, 315</td>
</tr>
<tr>
<td>Physical Education</td>
<td>340</td>
</tr>
<tr>
<td>Speech</td>
<td>112, 160, 250, 362, 365, 366</td>
</tr>
</tbody>
</table>

### S SOCIAL SCIENCES.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aging</td>
<td>356</td>
</tr>
<tr>
<td>Agricultural Economics</td>
<td>201, 301</td>
</tr>
<tr>
<td>Anthropology</td>
<td>101, 198, 203, 230, 301, 303, 309, 320, 330, 331, 350</td>
</tr>
<tr>
<td>Asian American Studies</td>
<td>201, 203, 275</td>
</tr>
<tr>
<td>Asian Studies</td>
<td>270, 275</td>
</tr>
<tr>
<td>Black Studies</td>
<td>101, 310, 311, 324, 370, 381</td>
</tr>
<tr>
<td>Chicano Studies</td>
<td>110, 248, 272, 313, 372, 383</td>
</tr>
<tr>
<td>Child and Family Studies</td>
<td>248</td>
</tr>
<tr>
<td>Communications</td>
<td>373</td>
</tr>
<tr>
<td>Economics</td>
<td>102, 198, 201, 203</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>300 [U]</td>
</tr>
<tr>
<td>Environmental Science</td>
<td>101 [U], 102 [U]</td>
</tr>
<tr>
<td>Foreign Languages</td>
<td>350</td>
</tr>
<tr>
<td>History</td>
<td>101, 102, 110, 111, 198, 201, 210, 230, 319, 320, 323, 370, 381, 392, 395, 399, 407</td>
</tr>
<tr>
<td>Military Science</td>
<td>385</td>
</tr>
<tr>
<td>Native American Studies</td>
<td>101, 320, 331</td>
</tr>
<tr>
<td>Political Science</td>
<td>101, 102, 195, 206, 222, 300, 310, 316, 324, 333, 434</td>
</tr>
<tr>
<td>Psychology</td>
<td>101, 102, 196, 230, 350, 355, 360</td>
</tr>
</tbody>
</table>

### C COMMUNICATION PROFICIENCY.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>201</td>
</tr>
<tr>
<td>Speech</td>
<td>102, 235, 302, 330, 331</td>
</tr>
</tbody>
</table>

### W WRITTEN COMMUNICATION PROFICIENCY.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicano Studies</td>
<td>102</td>
</tr>
<tr>
<td>English</td>
<td>101, 102, 105, 198, 201, 301</td>
</tr>
<tr>
<td>Office Administration</td>
<td>353</td>
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### B BIOLOGICAL SCIENCES.

<table>
<thead>
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<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropology</td>
<td>260</td>
</tr>
<tr>
<td>Bacteriology</td>
<td>101(L)</td>
</tr>
<tr>
<td>Biological Science</td>
<td>101(L), 102(L), 103(L), 104(L), 298(L)</td>
</tr>
<tr>
<td>Botany</td>
<td>201(L), 332(L)</td>
</tr>
<tr>
<td>Environmental Science</td>
<td>303</td>
</tr>
<tr>
<td>Forestry</td>
<td>303</td>
</tr>
<tr>
<td>Genetics</td>
<td>201</td>
</tr>
<tr>
<td>Zoology</td>
<td>135, 251(L), 330</td>
</tr>
</tbody>
</table>

### P PHYSICAL SCIENCES.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Astronomy</td>
<td>135</td>
</tr>
<tr>
<td>Chemistry</td>
<td>101(L), 102(L), 105(L), 106, 111(L), 212(L), 298(L)</td>
</tr>
<tr>
<td>Geology</td>
<td>101(L), 102(L), 310(L), 322, 350(L)</td>
</tr>
<tr>
<td>Materials Science and Engineering</td>
<td>Physics 101(L)</td>
</tr>
<tr>
<td></td>
<td>101(L), 102(L), 201(L), 202(L), 322, 380</td>
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</tbody>
</table>

### Z SCIENCES.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aging</td>
<td>130</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>174</td>
</tr>
<tr>
<td>Computer Science</td>
<td>140</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>300 [U]</td>
</tr>
<tr>
<td>Environmental Science</td>
<td>101 [U], 102 [U], 174</td>
</tr>
<tr>
<td>Food Science</td>
<td>170</td>
</tr>
<tr>
<td>Human Nutrition and Food</td>
<td>130</td>
</tr>
<tr>
<td>Materials Science and Engineering</td>
<td>Mathematics 103(L)</td>
</tr>
<tr>
<td></td>
<td>103, 105, 116, 140, 141, 171, 196, 201</td>
</tr>
</tbody>
</table>

(L) course includes laboratory work.

[U] course meets GUR in either sciences or social sciences.
COURSE CHALLENGE

Currently enrolled students may petition to receive credit by challenge exam if eligible under Academic Regulations, Rule 15(c).

Procedure. Students wishing to challenge should pick up a Challenge exam Form at the Registrar's Office, obtain the approval (signature) of the chairperson of the department offering the course, pay the $55 fee, and return the completed form to the Registrar's Office. The student's academic record will be flagged to determine eligibility for challenge according to Rule 15(c). The Registrar will notify the student and the department if the examination is authorized.

The list below indicates the availability of courses for challenge. Courses such as 499 Special Problems, internships, and seminars may not be challenged for credit. The symbol (+) indicates ALL undergraduate courses are available for challenge. The symbol (---) indicates NO courses are available for challenge.

01, 301

Aerospace Studies: (+)
Agricultural Economics: Ag Ec 335, 340, 350, 360
Agricultural Engineering: all undergraduate courses EXCEPT Ag E 154, 451, 455, 456, 495
Agricultural Mechanization: all undergraduate courses EXCEPT Ag M 403, 451, 481, 490, 495
Agriculture, General: (---)
Agronomy: all undergraduate courses EXCEPT Agron 405, 411, 499
Animal Sciences: A S 101, 213, 301, 350
Architecture: (---)
Asian American Studies: (---)
Astronomy: Astr 135
Atmospheric and Public Health: (---)
Biochemistry/Biophysics: (---)
Botany: Bio S 101, 102, 103, 104
Chemistry: Biom 310
Biology: all undergraduate courses EXCEPT Bot 410, 463
Business: Acct 230, B Law 210, Fin 325, Ins 320; Mgt 201, 301, 340, Mktg 360, QMeth 215, 344, 412, 417, 444, R E 305
Chemical Engineering: (---)
Chemical Physics: Ch P 481
Chemistry: (---)
Chicago Studies: Ch St 324, 325
Child and Family Studies: (---)
Civil and Environmental Engineering: (+) EXCEPT laboratory courses
Clothing, Interior Design, and Textiles: C T 216
Communications: (---)
Computer Science: (+)
Criminal Justice (+)
Economics: Econ 102, 201, 203, 301, 320

Education: (---)
Electrical Engineering: (+) EXCEPT laboratory courses
English: all undergraduate courses EXCEPT Engl 103, 301, 401
Entomology: (+) EXCEPT Idaho courses
Environmental Science: Env S 101
Fine Arts: F A 104, 201, 202, 203, 204, 300, 301, 302, 303, 304, 305
Food Science and Technology: (+) EXCEPT laboratory courses
Foreign Languages and Literatures: all undergraduate course EXCEPT those numbered 101, 102, 103, 104; Fren 401, Gr 401, Rus 320, 321, Span 320
Forestry and Range Management: FRM 230, 301, 303, 304, 321, 352, 350, 412, 452
Genetics and Cell Biology: GenCB 201, 301
Geology: Geol 322, 402, 403, 421, 430, 440, 470, 475, 480
History: all undergraduate courses EXCEPT Hist 198, 210, 424, 450, 469, 490
Horticulture: Hort 101, 130, 134, 251, 313, 320
Hotel and Restaurant Administration: H A 311
Human Nutrition and Foods: HNF 120, 130, 220
Humanities: Hum 100, 101, 202, 204
Industrial Technology: all 100- to 400-level VTE technical (study) courses
Landscape Architecture: (---)
Materials Science and Engineering: all undergraduate courses EXCEPT MSE 101, 105, 220, 423, 425, 453, 455
Mathematics: all undergraduate courses EXCEPT Math 101, 107, 116, 198, 300, 330, 431
Mechanical Engineering: (+)
Military Science: (+)
Music: Mus 522, 560
Native American Studies: Na Am 101
Pharmacy: Phar 217, 342, 417, 419, 436, 464, 471, 472, 483
Philosophy: Phil 101, 201
Physical Education: MPE, WPE Activity courses (---); all 100- to 200-level PEP courses (excluding laboratory courses)
Physics: all undergraduate courses EXCEPT Phys 101, 102, 202, 310, 380, 410
Plant Pathology: (---)
Political Science: Pol S 101, 102, 206, 222
Psychology: Psych 101, 102, 230, 311
Sociology: all undergraduate courses EXCEPT Soc 320, 321, 341, 342, 420, 421
Soils: all undergraduate courses EXCEPT Soils 401, 404, 410, 417, 418
Speech: (---)
Veterinary Anatomy: (---)
Veterinary Clinical Medicine and Surgery: (---)
Veterinary Microbiology and Pathology: (---)
Veterinary Pharmacology and Physiology: (+) EXCEPT laborator courses
Women Studies: (---)
Zoology: (---)
MINOR OR SECOND MAJOR

(Academic Regulations, Rule 54)

A student who has completed 90 semester hours may certify a minor or second major with the approval of the department offering the second major or minor.

Any department or program with an approved major may offer a second major. Departments or programs wishing to offer a minor must submit a request listing the required courses to the Catalog Subcommittee for approval.

Minors have been approved to date in the following areas: aging, agricultural economics, agricultural mechanization, agronomy, American Studies, animal sciences, Asian American studies, Asian studies, astronomy, biology, biochemistry/biophysics, Black studies, chemistry, Chicano studies, child and family studies, classical studies, clothing and textiles, communications, computer science, criminal justice, economics, electrical engineering, English, fine arts, food science, foreign languages, geology, history, horticulture, human nutrition and foods, mathematics, music, Native American studies, philosophy, physics, political science, psychology, religious studies, sociology, social work, speech, women studies, zoology.

SPECIAL PROBLEMS—499

The following definition of undergraduates special problems courses is listed for the convenience of students in making plans prior to registration for independent study. Courses numbered 499 Special Problems are for undergraduates only. They are designed to provide students with an opportunity to pursue independent study interests not readily available through conventional course offerings. Prior to enrollment for a Special Problems course, students must (1) crystallize an independent study intent and design, (2) negotiate a proposal including credit value (from 1 to 4) with the faculty member under whose jurisdiction the Special Problem will be conducted, and (3) have the proposal approved by the department head and filed with the student's records. Upon completion, normally within the term, Special Problems courses are graded S of F and may be repeated for credit in subsequent terms. Maximum credit per semester, per department may not exceed four credits.

The following categories represent the normal type of independent study undertaken as a Special Problem:

1. Research studies dealing with technical or specialized problems
2. Selection and analysis of reading relating to a specific subject, theme, concept, or interdisciplinary topic
3. The further development of a skill or aptitude through a creative project in the arts, sciences, or humanities.
4. Off-campus field experience or other non-traditional learning experiences not available through conventional offerings.

COURSE DESCRIPTIONS

Additions and changes. The following list includes course changes approved since the publication of the 1980-82 Catalog. New courses are identified under the course number; other courses have changes such as number, title, credit, prerequisite or description.

Dropped courses. Immediately following the new and changed courses is a composite list of courses which have been dropped.

Semester and alternate year designation. Effective with the new catalog, the semester and year the course is normally offered will no longer be listed as part of the course description. However, if a course is taught on alternate years only, the symbol (a/y) will be included at the end of the course description.

The 1983-85 Catalog will be published and available at the end of February 1983.

The 1982 Fall Time Schedule lists courses to be taught the fall semester as well as a tentative schedule of courses for spring.

The 1983 Spring Time Schedule is published each January.

SYMBOL KEY

New The word "new" printed directly under the course number indicates the course does not appear in the current catalog.

210 (101) Changes in course number appear under the new number with the old number following in parentheses.

3 The number following the course title indicates the hours of credit.

(2-3) The numbers in parentheses following the credit indicate the lecture, laboratory, or studio hours of contact required each week during a semester.

(a/y) Course is taught alternate years.

c/ Concurrent enrollment.

V 1-4 The letter "V" preceding the credit indicates the course is approved for variable credit within the semester.

Agricultural Engineering

Ag E 110 Introduction to Agricultural Engineering 1(0-3) For freshmen. Introduction to engineering design and agricultural engineering as a profession.

354 Agricultural Engineering Analysis 3 (2-3) Prereq Cpt S 203; Math 315 or c/. Analysis of physical and biological systems by digital computer methods.

361 Principles of Farm Machinery 3(2-3) Prereq C E 212. Operating principles of mechanical components and related motion force, and power requirements.

380 (486) Farm Electrification Engineering (2-3) Prereq E E 214 or c/. Design and practice with electric power and electronics in agriculture; motors; controls; instrumentation.

385 Principles of Environmental Control 3(2-3) Prereq E E 313, M E 301 or c/. Principles of heat and mass transfer applied to agricultural structures; system design; equipment selection.

390 Introduction to Soil and Water Engineering 3(2-3) Prereq C E 313; Soils 201. Fundamentals of soil and water engineering including agricultural hydrology and hydraulics, erosion control, and water quality.

455 Agricultural Engineering Design 1 1 (0-3) Prereq senior in Agr. Determination of background information for design; selection and evaluation of design concepts.

456 (472) Agricultural Engineering Design II 3(2-6) Prereq Ag E 455. Continuation of Ag E 455. Detailed design of an agricultural engineering-related process, machine, structure, or system.

462 (362) Internal Combustion Engines 3 (2-3) Prereq E E 301; C E 212. Theory and design; effect of compression ratio, fuel, weight transfer, traction, and hitching on tractor performance.

471 Farm Structures Design 3 Prereq C E 314. Engineering analysis and practice applied to concrete foundations and structural design in wood and steel for farm buildings.

482 Microcomputer Controls in Agriculture 3(2-3) Prereq Ag E 380. Microcomputer-based control systems with emphasis on agricultural applications. Credit not granted for both Ag E 462 and 582.

487 Food Process Engineering 3 Prereq Ag E 385 or F S 433 and Math 140. Design of food processing systems; food properties; thermal and physical processes. Credit not granted for both Ag E 487 and 587.

491 Irrigation Engineering 3(2-3) Prereq Ag E 390. Theory and design of gravity, sprinkler, and trickle irrigation systems; water requirements and sources; efficient use of water and energy. Credit not granted for both Ag E 491 and 591.

495 Internship in Agricultural Engineering 1-3 May be repeated for credit; cumulative maximum 6 hours. Not open to freshmen. Prior approval of supervisor and advisor required. Work experience related to agricultural learning.

505 Market Organization and Structural Design 5 Prereq Ag E 450 or 550. Analysis of marketing research tools and applications; theoretical concepts of marketing as defined by cultural, institutional, and economic systems. (a/y)

506 Conservation Engineering 3(2-3) Prereq Ag E 390. Predicting occurrence and disposition of water on agricultural watersheds; erosion processes; water and erosion control structures and methods; construction practices. Credit not granted for both Ag E 482 and 582.

582 Microcomputer Controls in Agriculture 3(2-3) Graduate level counterpart of Ag E 482; additional requirements. Credit not granted for both Ag E 482 and 582.

584 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.

587 Food Process Engineering 3 Graduate level counterpart of Ag E 487; additional requirements. Credit not granted for both Ag E 487 and 587.

591 Irrigation Engineering 3(2-3) Graduate level counterpart of Ag E 491; additional requirements. Credit not granted for both Ag E 491 and 591.

592 (591) Advanced Theory and Design of Irrigation Systems 3(2-3) Prereq Ag E 491/591. Design and development of irrigation water application systems. (a/y)

594 Drainage Investigation and Design 3 (2-3) Prereq Ag E 593. Systematic study of drainage investigation, design, materials, construction, and inspection applied to agriculture. Continuation of Ag E 593.

596 Conservation Engineering 3(2-3) Graduate level counterpart of Ag E 496; additional requirements. Credit not granted for both Ag E 496 and 596.

Agricultural Mechanization

Ag M 110 Introduction to Agricultural Mechanization 1(0-3) For freshmen. Basic skills for analyzing, solving, and presenting mechanization problems.

321 Agricultural Building Design 3(2-3) Prereq Ag M 203. Building orientation and location, space requirements and layout; structural requirements and design of foundations, frames, and connections.

416 Mobile Hydraulics 3(2-3) Prereq Ag M 312. Fluid power principles applied to the operation, selection, and maintenance of agricultural machinery.

426 Energy Concepts in Agricultural Structures 3 Prereq Ag M 203. Heat transfer, psychrometrics applied to temperature-moisture relationships in agricultural structures; renewable alternative energy sources. Credit not granted for both Ag M 426 and 526.

451 Seminar 1 Same as Ag E 451.

495 Internship in Agricultural Mechanization 1-3 May be repeated for credit; cumulative maximum 6 hours. Not open to freshmen. Prior approval of super-
Agriculture, General

Ag

101 Introduction to Agriculture 1 Survey of the broad field of agriculture, its relation to society, government, and business.

102 Exploring Agricultural Opportunities 1 Major areas of study in the College of Agriculture and an overview of career choices in agriculture.

380 (1999) Current Issues in Agriculture 1 Current agricultural issues such as zapping agricultural land, protecting the food supply, a quality environment for agriculture, and energy use.

Agronomy

Agron

301 Turfgrass Culture 3(2-3) Principles of establishment and management of turf for lawns, parks, golf courses. Field trip required.

304 (4-6) Cereal Products 2 Same as F 304.

305 Principles of Weed Science 3(2-3) Introduction to weed science; weed identification, biology, and control; herbicides and factors influencing their use.

411 Environmental Crop Physiology 3 Prereq Bot 320. Effects of environment and management on crop growth and development.

445 (345) Plant Breeding 3 Prereq GenCB 301. Genetic principles applied to the improvement of plants. Field trip required.

469 Vegetable Seed Production 1 Survey of vegetable seed industries; production methods and quality evaluation. Joint course taught with the University of Idaho.

496 Advanced Topics in Agronomy V 1-3 Prereq Bot 320 or Bio S 572.

505 Improvement of Crop Quality 3 Prereq Agron 345, BC/BP 364, or Bot 320. Principles and methods of crop quality improvement by crop management, plant breeding, and integrated approaches.

518 Plant Stress Physiology 2 Prereq Bot 320. Responses of plants to temperatures, water, radiation and other environmental stresses. Cooperative course taught at the University of Idaho.

519 Physiology of Flowering 2 Prereq Bot 320. Vernalization photoperiodism and biochemistry of flowering processes; models. Cooperative course taught at the University of Idaho.

538 Properties and Functions of Herbicides 2 Prereq Bot 320. Physical and chemical properties and mode of action of herbicides; their effects on plant structure, internal mechanisms, processes and sites of action. Cooperative course taught at the University of Idaho.

Animal Sciences

A S

168 Basic Equitation 1 Basic horsemanship and riding principles for students with no riding experience.

172 (284) Dairy Cattle Management Laboratory 1(0-3) May be repeated for credit; cumulative maximum 2 hours. Management principles associated with a dairy enterprise.

174 (280) Beef Cow-Calf Management Laboratory 1(0-3) May be repeated for credit; cumulative maximum 2 hours. Management principles associated with a beef cow-calf enterprise for students without experience.

176 (282) Sheep Management Laboratory 1(0-3) Management practices associated with a small flock sheep enterprise.

178 (285) Swine Management Laboratory 1(0-3) Management practices associated with a swine enterprise.

260 (250) Live Animal and Carcass Evaluation 3(1-6) Basic principles of live animal and carcass evaluation.

264 (240) General Poultry Science 3(2-3) Breeds, breeding, physiology, incubation, nutrition, housing, equipment, and management.

266 (288) Horses and Horsemanship 3(2-3) Not open to first-semester freshmen. History and evolution; anatomy and physiology; principles of selection; care and basic training of horses.

268 Intermediate Equitation 1 Horsemanship and riding principles for students with riding experience.

269 English Equitation 1 Prereq A S 268. Intermediate principles of forward seat riding.

270 Western Equitation 1 Prereq A S 268. Intermediate principles of stockseat riding.

272 (212) Dairy Cattle Traits 2(1-3) Evaluating form and function in dairy cattle; measurement of production and evaluation of performance.

301 Principles of Nutrition 3 Prereq Bio 102 or 104; Chem 102; Chem 240 or c/. Digestion, absorption, metabolism, and function of nutrients.

306 (366) Genetics of Farm Animals 3(2-3) Prereq GenCB 301. Genetic principles applied to breeding of farm animals.

306 (366) Reproduction of Farm Animals 3 Anatomy and physiology of reproductive organs; hormones of reproduction; production of gametes; artificial insemination; fertilization; prenatal development; fertility and infertility.

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

360 (315) Meat Science 2(3-2) Anatomy, slaughter, classification, and processing of red meat animals.

378 (397) Advanced Livestock and Meat Selection and Evaluation 2(0-6) May be repeated for credit. Prereq A S 212 or 250. Principles and practices of livestock and meat selection and evaluation.

380 (325) Seminars 1 May be repeated for credit. For juniors.

410 Ruminant Nutrition 3 Prereq A S 315. Anatomy, physiology, and metabolism in ruminant nutrition.

428 Topics in Animal Breeding 2 May be repeated for credit; cumulative maximum 4 hours. Prereq A S 330. Systems of selection and mating for genetic improvement in farm animals. Credit not granted for both A S 428 and 528.

440 (403) Physiology of Domestic Animals 3 Prereq A S 350. Basic animal functions; relationship and difference between domestic animals; measurement of functional processes.

441 (405) Physiology of Domestic Animals Laboratory 1(0-3) Prereq A S 440 or c/. Measurement of functional processes in domestic animals.

444 (425) Environment Aspects of Animal Management 3(2-3) Prereq A S 301; A S 440 or Zool 251. Relations of the thermal, social, and disease environments to animal function and performance.


457 Artificial Insemination and Pregnancy Detection 2(0-6) Prereq A S 351. Techniques in semen handling, insemination and pregnancy detection in cattle.


476 (322) Sheep Science 2(2-3) Prereq A S 313, 330, 350. Breeding, feeding, management, and marketing of commercial and purebred sheep. Wool studies Cooperative course taught at the University of Idaho.

500 (502) Seminar in Nutrition 1 May be repeated for credit.

505 Experimental Nutrition 3(1-6) Prereq Chem 217; BC/BP 364. Laboratory techniques used in nutritional research.

Anthro

Anth

201 [H pr

329 C ed

468 ed

330 S ti
modem biochemical methods of analy-
sis; introduction to physiological chem-
istry (a/y)
Rumen Microbiology 3 (2-3) Prereq A S 410; 3 hrs microbiology. Identify and
characterize bacteria and protozoa
and their metabolism in the rumen of
domestic and wild herbivores. (a/y)
120 Vitamins 2 Prereq A S 410 or
410; BC/BP 364. Role of vitamins in
the nutrition of animals; emphasis on fat
soluble vitamins. (a/y)
154 Energy Metabolism 3 Prereq A S 404 or 410; BC/BP 364. Biochemical,
physiological, and nutritional aspects
of energy metabolism. (a/y)
156 Protein and Amino Acid Metab-
olism 2 Prereq A S 404 or 410; BC/
BP 364. Biochemical physiological and
nutritional aspects of protein and amino
acid metabolism. (a/y)
158 New Topics in Animal Breeding 2
May be repeated for credit; cumulative
maximum 4 hours. Graduate level counter-
part of A S 428; additional require-
ments. Credit not granted for both A S
428 and 528.
288 Seminar in Animal Physiology 1
May be repeated for credit. Current
development in animal physiology.
Joint course taught with the University
of Idaho.
288 Endocrine Physiology 3 Prereq
BC/364. Physiology and chemistry of
docrine systems and mechanisms of
action of hormones on organs and
cellular processes in mammals.
294 Endocrine Physiology Laboratory
1 Prereq BC/ BP 364; A S 548 or
a/c. Modern techniques in endocrin-
ology; immunoassays, receptor assyas;
hormone measurement and hormone ef-
ection in animals.
306 Advanced Reproduction 4 (3-3)
Prereq A S 350. Physiology of sexual
maturation; gametogenesis; sexual cy-
cle; fertilization; embryonic develop-
ment; physiological, chemical, and
immunological characterization of hor-
mones of reproduction. (a/y)
331 America Before Columbus 3 Prereq
3 hrs Anth. Cultures and environ-
ments of North/Middle America from
the arrival of the earliest hunter-
gatherers to the complex Mayan and
Aztec civilizations.
351 Crime and Punishment in Primitive
Society 3 Prereq Anth 101. Crime and
punishment in nonwestern, nonliterate
societies. (a/y)
402 Introduction to Kinship Studies 3
Prereq Anth 101; Soc 101; Psych 350. The
sociology of kinship and social organi-
sation; social forms and processes in a
comparative perspective. Credit not
granted if student has earned Anth 402 and 502.
462 Human Issues in International Devel-
oping Prereq senior or graduate student.
Interdisciplinary study of the conflict
between tradition and modernity in Third World society,
and its attendant human predicament.
502 Introduction to Kinship Studies 3
Graduate level counterpart of Anth 402;
aditional requirements. Credit not grant-
ed for both Anth 402 and 502.
506 Seminar in Primitive Art 3 By inter-
view only. Art as an expression of social and cultural systems in a nonliterate
society; art is examined as an
affecting behavior. (a/y)
512 Primitive Stoneworking 3 Aboriginal
stone tool making methods and their
application to archaeology.
513 Applied Anthropology 3 By inter-
view only. History and contemporary direc-
tions of applied anthropology; theory
and method; international and com-
unity development issues; case study.
537 Quantitative Methods in Archaeology
3 May be repeated for credit; cumula-
tive maximum 6 hours. Prerequisite
undergraduate Stat course. Exploratory data
analysis, inferential statistics, locational
analysis, interactive terminal use and
batch statistical processing applied to
archaeological problems.
540 Lithic Technology 3 Prereq Anth 412.
Basic concepts involved in the interpre-
tation of lithic artifacts via replication
systems analysis.
550 Sociocultural Linguistics 3 The role
of language in culture, cognition
and society. (a/y)
554 Seminar in Anthropological Methods
3 Prereq Anth 430, 510. Elicitation, re-
cording techniques and analysis of
sociocultural, and linguistic field data;
field work and seminar orientation.

Architecture
Arch
101 Graphic Communication I 3 (1-6)
Drawing to perceive three-dimensional
space; freehand (architectural) draw-
ing, drafting, and orthographic draw-
ning; perspective, shades and shadows,
lettering, and rendering techniques.
102 Graphics Communication II 3 (2-6)
Prereq Arch 101. Continuation of Arch
101. Refinement of presentation tech-
niques; exposure to and other perspective
drawing and presentation methods.
120 Architectural History 3 Develop-
ment from prehistory to the Gothic
Cathedral; influences of society, cli-
mate, materials on buildings from simple
shelters to monumental archi-
tecture.
201 Introductory Design I 3 (0-6)
Prereq Arch 101, 102. Two- and three-
dimensional basic designs as visual and
structural phenomena.
202 The Built Environment 3 Planning
and design of the built environment;
products, interiors, structures, landscapes,
cities, regions, earth; factors and pro-
cess affecting environmental quality.
203 (207) Introductory Design II 3 (0-6)
Prereq Arch 201. Determinants of tradi-
tional, contemporary and future space
enclosure systems.
233 Ancient to Medieval Architecture 2
Prereq major in Arch. Development of
western architecture from prehistory to
late medieval; social, technical, and sci-
entific influences.
234 Renaissance to 19th Century Architec-
ture 2 Prereq Arch 323. Western archi-
tecture from the Renaissance and Bar-
oque to the pioneers of the modern
movement.
331 Materials and Construction I 3 Prereq
Arch 101. Properties of building ma-
terials and construction principles.
332 (355) Materials and Construction II 3
(2-3) Prereq major in Arch or Cst M.
Theory and application of various con-
struction systems and materials—wood,
wood, steel, and reinforced concrete systems.
352 Architectural Structures I 3 Prereq
junior in Arch or Cst M. Introduction
of statics and mechanics; analysis and
design of statically determine archi-
tectural structures using timber, steel
and reinforced concrete systems.
352 Architectural Structures II 3 Prereq
Arch 351. Continuation of Arch 351.
386 Reading Examination V 1-3 Prereq
major in Arch or Cst M. Examination of
summer reading from lists prepared
by department.
413 Terminal Design Project 6(0-12)
Prereq Arch 411, 415. Architectural pro-
ject selected by the student and
approved by the faculty.
423 Twentieth Century Architecture 2
Prereq Arch 324. History from the modern
movement to the day; principles of archi-
tectural design demonstrated in the
work of 20th century architects.
424 Conservation of Historic Buildings 2
Prereq Arch 324. Theory and practice
of architectural conservation; mainte-
nance, repair, restoration, adaptive re-
use; historic districts; incentives.
425 Architectural Theory I 2 Prereq Arch
423. Architectural criticism and evalua-
tion as viewed from contemporary and
historical precedents.
426 Architectural Theory II 2 Prereq Arch
423. Theory development and its effect
on the design process.
432 Environmental Control of Buildings I
3(2-2) Prereq major in Arch or Cst M.
Building heating, ventilating, air condi-
tioning systems, large and small scale;
heat flow systems; plumbing and wa-
ter supply systems.
433 Environmental Control of Buildings II
3(2-2) Prereq Arch 432. Building light-
ing, performance criteria and design,
electrical distribution for large and small buildings, vertical transportation; building communication systems.

434] Acoustics I Prereq major in Arch or Cst M. Sound theory, control, acoustics, and reinforcement systems as applied to architectural problems.

461] Architectural Structures III 3 Prereq Arch 303, 352. Wind and seismic loads on architectural structures; high-rise structure systems; reinforced concrete systems, each retaining structures and foundation systems.


472] Construction Communications/Costs/ Codes 2 Prereq major in Arch. Design and construction delivery systems; codes, costs, specifications, manuals, and contract documents.

473] Architectural Business 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 1-16 May be repeated for credit; cumulative maximum 16 hours. Placement in an approved industrial, professional, or governmental situation for specialized or general experience.

493] Seminar in Environmental Control I 1 May be repeated for credit; cumulative maximum 4 hours. Prereq major in Arch or Cst M. Advanced study in environmental control of buildings.

498] Seminar in Architectural Structures I 1 May be repeated for credit; cumulative maximum 4 hours. Prereq Arch 301, 351 or C. Design principles of architectural structure systems; available systems for spanning and enclosing architectural space.

Astronomy

Astr 390] Aspects of the Night Sky I Prereq Astr 335 or 345 or Hist 331. Star names, magnitude scales, constellation identification and mythology, astronomical coordinates, solar, lunar, and planetary motions, practical astronomy.

435] Astronomy and Astrophysics 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Math 172. Advanced topics in modern astronomy and astrophysics.

Bacteriology


410] Advanced Medical Microbiology and Mycology 3 Prereq Bact 310. Analysis of bacterial virulence determinants; fungal infections of man. (a/y)


428] Basic and Applied Microbial Physiology 3 Prereq Bact 201; BC/BP 364. Basic microbial physiology and its relevance to the processes of applied microbiology. Credit not granted for both Bact 414 and 514.

512] Immunology 3 The immune system at the animal, cellular, and molecular levels.

513] Research Techniques in Immunoch- emistry/Biology 2(0-6) Prereq 310 or intro immunology course.

514] General Virology 3 Graduate level counterpart of Bact 414; additional requirements. Credit not granted for both Bact 414 and 514.

515] Biology of Membranes 2 Prereq Bact 201; BC/BP 564. Current theories and understanding of molecular structure, composition, and function of procarboxylic and eucaryotic membranes. (a/y)

528] Basic and Applied Microbial Physiology 3 Graduate level counterpart of Bact 428; additional requirements. Credit not granted for both Bact 428 and 528.

555] Intracellular Parasites 2 Prereq Bact 310; BC/BP 564. Bacteria which function as facultative or obligate parasites: bacterial factors which enhance and/or necessitate intracellular growth. (a/y)

556] Physiology 4(3-3) Same as Bot 556. new

570] Advanced Immunology 3 Prereq introductory course in immunology. Cellular and molecular regulation of the immune response. (a/y)

580] (514) Selected Topics in Microbiology 1 May be repeated for credit; cumulative maximum 2 hours. Prereq 9 hrs. upper-division Bact.

Biochemistry and Biophysics

BC/BP 571] Principles of Biophysical Chemistry 3 Prereq Chem 106 or 212; 1 sem Org Chem; 1 yr college physics; Math 172. Foundations of physical chemistry for students in life sciences; thermodynamics, chemical equilibria, electrochemistry, kinetics.

372] Principles of Biophysical Chemistry 3 Prereq BC/BP 571. Transport processes; elementary quantum theory; chemical bonding; principles and applications of spectroscopy of macro-molecules; statistical mechanics.

381] Biophysical Chemistry Laboratory I 0(2-3) Prereq BC/BP 571 or 3(1-6) Pre. Molecu- lar structure, visible and ultraviolet spectroscopy, circular dichroism, resonance, and transport phenomena with particular application to life sciences.

455] Physical Characteristics of Biological Macromolecules 3 Prereq BC/BP 563. The forces determining structure of biological macromolecules; physical techniques used to study biological systems. (a/y)

457] Proteins and Enzymes 3 Prereq BC/BP 563. Enzyme mechanisms; protein structure and function; protein evolution. (a/y)

452] Magnetic Resonance 3 Prereq Chem 332. Basic theory and applications of NMR and ESR.

501] Biochemistry Seminar 1 May be repeated for credit; cumulative maximum 5 hours. Required of all graduate students in biochemistry.

700] Master's Research, Thesis, and/or Ex- amination Variable credit.

702] Master's Special Problems, Directed Study, and/or Examination Variable credit.

Asian American Studies

AAS:

201] [S] Introduction to Asian American History 3 Historical experience of Asian/Pacific Americans from the 19th century to 1965.

275] [S] Introduction to East Asian Culture 3 Same as Hist 275.

301] Contemporary Issues, 1965-Present 3 Social-psychological political, economic, educational, and cultural issues which shape Asian American identity and community today.

311] Asian American Literature 3 Asian American fiction, dram, poetry, and other arts, 1900-preset; impact of Asian American culture and experience upon these works.

Asian Studies

As St

310] [H] Eastern Civilization 3 Same as For new L 310.

352] [H] Literature and Lore of South Asia 2 Same as For new L 352.

Biology

Bio 3


491] Natural History of Middle Fork Salmon River Canyon 2 Guided raft trip; emphasizing the ecology, limnology, wildlife, and vegetation of Middle Fork Salmon River Canyon.

Biometrics

Biom 4

480] Statistical Methods in Engineering I Prereq Math 172, 220. Random variables, sampling, hypothesis testing, linear, multilinear, and nonlinear regression; analysis of variance for designed experiments; statistical computing.

Principles of design with analysis and interpretation of data. Credit not granted for both Bot 430 and 431. The design and analysis of experiments by linear models. (a/y)

Black Studies

25 Women and Minorities in the Economy 3 Same as Econ 325.

Botany

Principles of Organic Evolution 2 Same as Zool 405.


Plant Physiology—Water Relations 1 Prereq Bot 320. Physical, biochemical and environmental processes in plant-water relations.

Plant Physiology—Membrane Transport 1 Prereq Bot 320. Membrane transport in plants, membrane structure, passive and active transport, regulation.


Plant Physiology—Photosynthesis 1 Prereq Bot 320; BC/DP course. Basic aspects of photosynthesis and carbon metabolism.

Plant Physiology—Plant Growth 1 Prereq Bot 320. Growth of cells and meristems; hormones and growth regulation; environmental effects; photoperiodism.

Principles of Plant Systematics 3 Prereq Bot 320. Diversity level counterpart of Bot 430; additional. Credit not granted for both Bot 430 and 530.

Phylogeny 4(3-3) Prereq Bot 201 or Bot 201. Biology of the algae; systematic morphology, physiology, cytology, and ecology of algae with emphasis on freshwater forms. (a/y)

Business Administration

Due to staffing limitations, enrollment in 300- and 400-level Business courses is open only to students who degree programs specifically require these Business courses.

All business courses were previously listed with a B prefix. Effective the fall semester 1981, business courses are listed with a prefix designating topic. The inclusion of a complete course listing indicates there have been changes in the course in addition to the prefix.

Accounting

Accctg

230 Principles of Accounting I 3
231 Principles of Accounting II 3 Prereq Accctg 230. Introduction to managerial accounting; generation and use of accounting data for planning and controlling business operations.
232 Intermediate Accounting I 3 Prereq Accctg 231. Theory underlying the determination of income; analysis of financial statements.
233 Intermediate Accounting II 3
238 Cost Accounting 3
430 Advanced Accounting 3 Prereq Accctg 331. Partnership entities and extended forms of corporate ownership and entities.
431 Accounting Theory 3 Prereq Accctg 331. Accounting theory and contemporary issues.

Accounting Systems 3
344 Accounting for Public Organizations 3

Prereq Accctg 331. Conceptual and procedural accounting issues involving public sector organizations.
345 Advanced Tax Accounting 3 Prereq Accctg 335. Corporate partnership estate, trust, and fiduciary taxation.
348 Advanced Cost/Managerial Accounting 3
349 Auditing 3 Prereq Accctg 331, 433. Nature of auditing, generally accepted auditing standards, and audit procedures as related to auditing of financial statements by independent accountants.
408 Internship V 1-15
499 Special Problems 1-4
530 Accounting Theory 3
532 Contemporary Accounting Cases and Problems 3
533 Administrative Control 3
534 Survey of Accounting 4
535 Tax Planning and Research 3
538 Seminar in Cost/Managerial Accounting 3
539 Seminar in Public Accounting and Auditing 3

Finance

Fin

325 Finance 3 Prereq QM 205 or CFA/ Accctg 231 or CFA/; Econ 201 or 203. Financial decision making, financial strategies, investment in current and fixed assets, financial instruments, and capital markets.
326 Cases in Financial Management 3
327 Investment Analysis 3 Prereq Fin 325. Investment objectives, security markets, market efficiency and principles of security valuation.
329 Financial Institutions and Markets 3 Prereq Fin 325; Econ 520. Level and term structure of interest rates; characteristics of financial institutions and markets; financial futures.
346 Seminar 3
348 Internship V 1-15
349 Special Problems 1-4
502 Financial Management 3 Prereq Accctg 534; Econ 201 or 203. Financial management of the firm; capital budgeting, working capital management, capital acquisition, and dividend policy.
507 Interest Rates and Financial Markets 3 Real and nominal interest rates; bond pricing; term and risk structure of interest rates; investment and commercial banking; financial futures.
525 Advanced Financial Management 3
526 Problems in Financial Management 3
527 Investment Analysis and Portfolio Management 3
Seminar 3

Special Projects or Independent Study Variable credit

Master's Special Problems, Directed Study, and/or Examination Variable credit

Insurance

Ins

Risk and Insurance 3

Pure Risk Management 3

Life and Health Insurance 3

Insurance V 1-15

Social Insurance 3

Special Projects or Independent Study Variable credit

Master's Special Problems, Directed Study, and/or Examination Variable credit

Management

Mgt

Introduction to Business Administration 3 Not open to freshmen. For non-majors. Management, marketing, production, finance, law, work behavior, organizational theory. Principles of Management and Organization 3

Operations Management 3

Organizational Behavior 3 Prereq Mgt 301. Organizational behavior, motivation, leadership, communications, decision making, group dynamics.

Advanced Operations Management 3 Prereq Mgt 340. Advanced concepts of production and operations management; development of analytical skills in identifying and solving production and operations management problems.

Introduction to Management Information Systems 3 Prereq Cpt S 220; Mgt 501. Systems design principles, computer capabilities and information management theory that contribute to the requirements of decision makers.

Personnel and Human Resource Management 3 Prereq QMeth 215; Mgt 301. Policy and practice in human resource utilization, selection, training, motivating, evaluating, and compensating employees; labor relations; EEO legislation.

International Business 3 Prereq Mgt 501. The theory of foreign direct investment, management of multinational corporations, and host country analysis.

Comparative International Management 3 Comparison of management systems of selected countries.

Systems Analysis and Design 3(2-3) new Prereq Cpt S 250; COBOL programming. The application of systems analysis to the design and development of business and management systems.

Business Strategy and Policy 3 Prereq completion of all other core courses. Overall management of the firm; top level decision making and planning.

Small Business Policy 3 Prereq completion of all other core courses. Application of management theory and principles to small firms; applied consulting experience with operating businesses. By interview only.

Office Administration

Of Ad

Beginning Typewriting 2(1-3)

Intermediate Typewriting 2(1-3)

Beginning Shorthand 4(3-5)

Advanced Typewriting 2(1-3)

Intermediate Shorthand 3(2-3)

Advanced Shorthand 3(2-3)

Beginning Transcription 2(1-3)

Advanced Transcription 2(1-3)

Calculating Machines 1(0-3)

Office Services 3(1-6)

Business Communications 3

Management of Word Processing Systems 1

Word Processing Laboratory 1(0-3)

Administrative Management 3

Information and Records Management 3 Not open to freshmen and sophomores. Design and use of records systems and vital records programs, analysis design and control of business forms and procedures manuals.

Micrographic Systems 2

Methods of Teaching Typewriting 1

Methods of Teaching Stenography 1

Methods of Teaching Bookkeeping and Basic Business 1

Instructional Practicum V 1-4

Problems in Administrative Operations 3

Administrative Internship V 2-12

Special Problems V 1-4

Quantitative Methods

QMeth

Statistics 4(3-3)

Principles of Optimization 3

Statistical Methods for Management 3

Introduction to Simulation 3

Decision Analysis 3(2-3)

Internship V 1-15

Special Problems V 1-4

Marketing

Mktg

Marketing 3

Consumer Behavior 3

Marketing Management 3

Marketing Models and Analysis 3

Channel Structure and Systems 3

Marketing Research 3

Retailing Management 3

Promotion Management 3

Internship V 1-15

Special Problems V 1-4

Survey of Marketing 3

Marketing Management and Administrative Policy 3

Research Methodology 3 Prereq QMeth 215. Types of data needed and available, collection and analysis of data as they relate to decisional research.

Seminar in Marketing—Behavior/Economics Aspects 3

Consumer Behavior Theory 3

Social Issues in Marketing 3

Special Projects or Independent Study Variable credit

Master's Special Problems, Directed Study, and/or Examination Variable credit

Real Estate

R E

Real Estate 3

Valuation and Location Theory 3

Real Estate Administration 3

Real Estate Finance 3 Prereq Fin 325. Instruments, techniques, and institutions of real estate finance with emphasis upon the financial decision-making process.

Internship V 1-15

Special Problems V 1-4

Advanced Topics in Real Estate 1

new Basic forces that motivate and affect investors in their use and possession of real estate.
Chemical Engineering

(110) Engineering Orientation 1(0-3) Engineering as a profession; career opportunities; general orientation for freshman engineers.

(221) Chemical Process Principles and Calculations 4 Prereq Chem 106 or 212; Math 172. Fundamental concepts of chemical engineering; problem-solving techniques and applications in stoichiometry, material and energy balances, and exergy analysis.

(407) Chemical Engineering Thermodynamics 3 Prereq Ch E 201; Chem 331; major in Ch E. Definition, basic concepts and laws; property relationships; construction of thermodynamic charts and tables; compression and liquefaction of gases; power cycles; refrigeration.

(340) Unit Operations I 1 Prereq Ch E 201. Design calculations, operation, and evaluation of equipment used in fluid flow, heat transfer, and mass transfer.

(431) Unit Operations II 1 Prereq Ch E 330. Design calculations, operation, and evaluation of equipment used in distillation, extraction, absorption, adsorption, drying, humidification, filtration, and other unit operations.

(545) Process Control 3 Prereq Ch E 411. Measuring instruments, automatic control systems, and instrumentation of the design, testing, and operation of chemical and related processes as practiced in industry.

(414) Introduction to Nuclear Engineering 3 Prereq junior in Engr or Ph. S. Nuclear physics and radiation calculations; conceptual design of a nuclear reactor core; nuclear reactor shutdown using basic formulations of nuclear engineering.


(508) Air Pollution Control Engineering 3 Prereq senior in Engr or Ph. S. Measurement and control of air pollution; engineering design calculations; equipment and process.

(515) Convection Heat Transfer 3 Same as new M E 515.

(522) Viscous Fluid Flow V-2 Same as M E 522.

(523) Basic Concepts in Catalysis 2 Preparation and characterization of supported heterogeneous catalysts, mechanistic interpretation of surface reactions and chemisorption, desorption, and kinetics from lab experiments.

(525) Polymer Reactor Engineering 3 Prereq Ch E 412. Reaction engineering applied to polymerization reactions; effects on polymerization rate, molecular weight, and copolymer composition.

(527) Advanced Chemical Engineering Thermodynamics 2-3 Equilibrium in physical and chemical systems; generalized prediction of thermodynamic properties, nonideal systems. Joint listing with the University of Idaho.

(529) Chemical Engineering Kinetics 2-3 Interpretation of kinetic data and design of nonideal chemical reactors; fundamentals of heterogeneous catalysis, systems preparation, characterization, and theory. Joint listing with the University of Idaho.

(532) Transport and Reactions in Multiphase Processing 3 Prereq Ch E 331. Momentum, heat, mass transfer, and reactions in multiphase processing as relevant to chemical, polymer, environmental and biotechnology processes.

(541) Chemical Engineering Analysis I 2-3 Mathematical analysis of chemical engineering operations and processes; mathematical modeling and computer applications. Joint listing with the University of Idaho.

(505) Mass Transfer Operations I 2-3 Diffusion and equilibrium operations. Joint listing with the University of Idaho.

(546) Mass Transfer Operations II 2-3 Diffusion and equilibrium operations. Joint listing with the University of Idaho.

(551) Discrete Digital Control 3-2 Prereq Ch E 441. Design and implementation of digital control algorithms; Z-transforms; state-space methods.

(557) Advanced Plant Design 2-3 Design of new process plants for optimum cost and economic return; scale-up of pilot plants. Cooperative course taught at the University of Idaho.

(560) Biochemical Engineering 2-3 Applications of chemical engineering to biological systems; fermentation processes, biochemical reactor design, transport phenomena in biological systems, biochemical technology. Cooperative course taught at the University of Idaho.

Chemical Physics

(510) Solid State Direct Energy Conversion 3 Same as E E 510.

(517) Electrical, Magnetic, Optical and Condensed Matter Properties of Solids 3 Same as E E 517.

(538) Special Topics V 1-3 May be repeated for credit. Selected subjects in molecular structure, spectroscopy, solid state, and surface physics.

(561) Atomic and Molecular Physics 3 Same as Phys 561. Graduate level counterpart of Ch P 461; additional requirements. Credit not granted for both Ch P 461 and 561.

Physical Laboratory 10(0-3) Prereq Chem 333. Continuation of Chem 333. Experiments in molecular structure, atomic molecular spectroscopy, chemical kinetics.

(305) Introductory Radiochemistry 3 (2-3) Prereq Chem 106 and 107 or 212; Phys 202. Radioactivity applied to the physical and biological sciences.

(405) Nuclear Chemistry 3 Prereq Chem 420. Nuclear reactions and structure; radioactive decay; interactions of radiation with matter; techniques for studying radionuclides. (a/y)

Quantitative Instrumental Analysis 2 Prereq Chem 213, 217, or 221; Chem 332. Electronics and operational amplifier circuitry applicable to chemical instrumentation; principles and applications of modern chromatography, spectrophotometry and electrochemical techniques.
426 Quantitative Instrumental Analysis Laboratory 2(0-6) Laboratory experience in modern analytical methods.

427 (480) Environmental Chemistry 3 Prereq. Chem 212, 217 or 221; Chem 240 or 340. Chemical aspects of selected pollution problems; analytical methods for pollutants; chemical control measures; chemical synergisms. (a/y)

520 (322) Principles of Chemical Analysis 3 Prereq. Chem 212, 217 or 221. Chemical equilibria in aqueous and non-aqueous systems; elution titrations; oxidation-reduction; multistage separations, statistical treatment of chemical data; sampling. (a/y)

521 Chromatography 1 Prereq Chem 425. new (a/y)

522 Electrochemistry 1 Prereq Chem 425. new (a/y)

523 Trace Organic Analysis 1 Prereq Chem new 425. (a/y)

524 Trace Element Analysis 1 Prereq Chem new 425. (a/y)

525 Mass Spectrometry 1 Prereq Chem 425. new (a/y)

526 Analytical Spectroscopy 1 Prereq Chem new 425. (a/y)

527 Chromometrics 1 Prereq Chem 425. new (a/y)

528 Microprocessors 1 Prereq Chem 425. new (a/y)

529 Selected Topics in Analytical Chemistry 2 May be repeated for credit. Prereq Chem 401, 425. Selected current developments. (a/y)

546 Spectroscopic Identification of Organic Compounds V 1-3 May be repeated for credit; cumulative maximum 3 hours. Prereq Chem 342. Structural interpretation of 1H and 13C NMR, vibrational and mass spectra of organic compounds; audio-tutorial.

555 Approaches to Chemistry Teaching 1 new May be repeated for credit. Workshop in teaching methods in chemistry.

Child and Family Studies

CFS

442 The Child and Family in Poverty 3 Prereq Psych 101; Soc 101. Extent and distribution of poverty and deprivation; social psychology of poverty; effects on individual development and family functioning; compensatory programs.


452 (452) Topics in Family Financial Problems 1-3 May be repeated for credit; cumulative maximum 9 hours. Prereq Econ 102 or 203; Soc 101; CFS 350; or 9 hrs social science. Role of family in economy; effect of social class, economic, legal and political issues on family financial management. Not granted for both CFS 454 and 554.

540 Theories of Human Development 2 or 3 new Graduate level counterpart of CFS 440; additional requirements. Credit not granted for both CFS 440 and 540.

546 Organization and Administration of Human Service Programs 3 Legislation, management, programs, personnel, financial, research, and evaluation.

nances, resources, and relationships with other agencies.

548 Topics in Child and Family Studies 2 or 3 May be repeated for credit; cumulative maximum 9 hours. By interview only. Current topics in child and family studies.

550 Family Decision Styles 3 Prereq 12 hrs Soc S. Effects of varying value patterns and decision styles on individuals within a family. (a/y)

554 Topics in Family Financial Problems new 1-3 May be repeated for credit; cumulative maximum 9 hours. Graduate level counterpart of CFS 454; additional requirements. Credit not granted for both CFS 554 and 559.

595 Instructional Practicum V 1-4 Prereq new senior or graduate student. Supervised instructional practicum for departmental majors.

Chinese

Chin

301 First Semester 4 Fundamentals of speaking, reading, and writing. 302 Second Semester 4 Continuation of Chin 301.

303 Intensive Chinese 10(5-15) Provides new active knowledge of listening to, speaking, reading, and writing Chinese. For students with little or no experience in Chinese. Open to undergraduate and graduate students.

Cinema

Cine

375 Photographic History and Criticism 3 new Prereq Cine 253. Photographic as an art form.

433 Film Criticism and Analysis 3 Prereq Cine 323, 333. For juniors and seniors.

443 (3635) Evolution of Cinematic Style 3 Prereq Cine 323, 333.

463 Advanced Film Production 3(2-3) May be repeated for credit; cumulative maximum 6 hours. Prereq Cine 353.

493 (395) Film Scriptwriting 3 Prereq Cine 443.

Civil Engineering

Enrollment in the following courses will be restricted to department majors in engineering:

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211 Statics 3 Prereq Math 127 or C 313; Phys 201 or C 313. Engineering mechanics concepts; force systems; static equilibrium; centroids; centers of gravity; shear and moment diagrams; friction; moments of inertia.

212 Dynamics 3 Prereq C E 211. Kinematics and kinetics of particles and rigid bodies; introduction to mechanical vibrations.


214 Introductory Dynamics 2 Prereq C E 211 or 213. Kinematics and kinetics of particles and rigid bodies.

314 Mechanics of Materials 3 Prereq C E 211. Concepts of stress, strain, and their relationships; axial loads, torsion and bending; deflected stresses, properties of materials; column and beam analysis.

317 Geotechnical Engineering I 2 Prereq Geol 102; C E 314 or C 317. Required for students in C E and Geol Engr. Historical and current developments, index properties, hydraulic and drainage phenomena, consolidation, shear strengths, sandification.

318 Geotechnical Engineering Laboratory I 1 Prereq C E 317 or C 317. Required for students in C E and Geol Engr. Evaluation of soil index properties, permeability, consolidation, and shear strength.

322 Transportation Engineering 3 Prereq QMath 215; junior in C E, Transportation engineering; demand and performance functions; geometric design; capacity and control of transport modes.

330 Mechanics of Structures 4 Prereq CEE 203; Math 320; C E 317. Statical analysis of statically determinate and indeterminate structures; deflections, influence lines and moving loads; introduction to matrix analysis.

341 Water Supply and Wastewater Engineering 3 Prereq C EE 201; Chem 102. Water supply development; wastewater collection systems, water transportation and distribution; environmental aspects of water quality.

342 Water and Wastewater Treatment 3 Prereq C EE 201; certificated engineering or environmental science majors only. Water and wastewater treatment processes and design.

403 Environmental Geology 3 Same as Geol 403.

414 Structural Design Laboratory 2(0-6) Prereq C E 431, 433. Senior design lab on the integration of course work into the execution of design.

415 Environmental Measurements 3(1-6) Prereq Chem 105; certificated engineering or environmental science majors only. Theory and laboratory measurement techniques used in analyzing environmental quality parameters. Credit not granted for both C E 415 and 515.

417 Geotechnical Engineering II 2 Prereq C E 417, 518. Slope stability, sheetpiling, ground water control, improvement in soil properties, field measurements, performance observations, case studies.

418 Geotechnical Engineering Laboratory 1 new (0-3) Prereq C E 417 or C 417. Soil and rock mechanics testing; unconfined and triaxial testing of soil and rock; quality and identification, deformation, field measurements.

421 (418) Transportation Laboratory 2(0-6) Prereq C E 322. Field work to provide practical application experience in transportation problems.

422 Pavement Design 3 Prereq C E 322. Structural analysis and design of flexible and rigid pavements for highways and airports.

424 Transportation Engineering and Planning 3(2-3) Prereq C E 322. Basic principles and methods used by engineers and planners in the planning,
signing, and operation of transportation systems.

Designing for Civil Engineering 3 Prereq C E 322. Analytical techniques used by civil engineers in project planning.

Engineering Geology and Geotechnics 3 Prereq senior or graduate student in C E or Geol. Procedures and techniques used to evaluate geologic data for site selection and design of engineering structures. Credit not granted for both C E 426 and 526.

Design of Concrete Structures 3 Prereq C E 433. Composite design; two-way slab systems; prestressed concrete; ACI Code.

Foundations 3 Prereq C E 317, 433. Analysis and design of foundations; footings, piles, retaining walls, sheet piling, caissons, sheet冠, concrete piers and abutments. Joint listing with the University of Idaho.

Design of Timber Structures 3 Prereq C E 330 or C E 330 or C E 330. Engineering properties of wood products; analysis and design; connection details; durability and moisture effects; lumber, plywood, glulam, plywood, adhesives.

Statistically Indeterminate Structures 3 Prereq C E 330. Classical methods of frame analysis; moment distribution; slope-deflection; prismatic and nonprismatic members; matrix stiffness method using computer programs.

Rock Mechanics 3(2-3) Same as Geol 440.

Highway Design and Operation 3 Prereq C E 332. Fundamentals of geometric design and traffic engineering for urban and rural highways. Cooperative course taught at the University of Idaho.

Ground-Water Hydrology 3 Same as Geol 475. (a/y)

Advanced Topics in Transportation Engineering 2-4 May be repeated for credit; cumulative maximum 9 hours. Prereq C E 411, 515. Analysis, planning, design, and evaluation of transportation systems and models.

Environmental Measurements 3 Prereq C E 413; additional requirements. Credit not granted for both C E 411 and 515.

Engineering Geology and Geotechnics 3 Prereq Graduate level counterpart of C E 426; additional requirements. Credit not granted for both C E 426 and 526.

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, layered loaded piles.

Computer Methods of Structural Analysis 3 Matrix-stiffness method applied to trusses and frames; elastic-plastic analysis of frames; non-linear and stability analysis of frames.

Advanced Structural Design 3 Advanced concepts in structural design; computer aided design. Joint listing with the University of Idaho. (a/y)

Engineering Aspects of Aquatic Chemistry 4(3-3) Prereq C E 451, 433. Material properties; design criteria; structural reliability; computer aided design.

Instrumental Analysis of Environmental Contaminants 3(1-6) Prereq C E 411, 541. Theory and methods of analysis of water and wastewater samples for contaminants using spectrometric, chromatographic, and spectrophotometric techniques. (a/y)

Environmental Engineering Unit Operations 3 Prereq Math 315, C E 342. Theory and design of physical and chemical unit operations of water and wastewater treatment systems. Joint listing with the University of Idaho.

Advanced Topics in Environmental Engineering Practice 2-4 May be repeated for credit; cumulative maximum 9 hours. Analysis and evaluation of water and wastewater systems; problems associated with solid waste, radiological health, environmental health, or air pollution.

Wastewater Treatment System Design 3(2-3) Prereq C E 542 or C E 542. Application of unit operations and processes to design of integrated treatment systems; critical review of designs. Joint listing with the University of Idaho.

Industrial Waste Problems 3 Prereq C E 542 or C E 542. Evaluation and feasible solutions of industrial wastes problems. (a/y)

Water Quality Management 3 Prereq C E 542. Principles of systems analysis applied to engineering management of water quality problems. (a/y)

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.

Solid Waste Management and Design 3(2-3) Prereq C E 432. Solid waste management with emphasis on design of processing and disposal facilities. (a/y)

Advanced Topics in Hydraulic Engineering V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq C E 411. Water hammer, surge tanks, hydraulic machinery, similitude, mixing in rivers and estuaries, hydraulic design.

Advanced Hydrology V 1-3 May be repeated for credit; cumulative maximum 3 hours. Prereq C E 351. Principles of hydrometeorology and severe storm analysis, flood control, flood runoff analysis, project design and operation. (a/y)

Sanitary Engineering Analysis 3 Prereq C E 541. Theoretical and laboratory methods for development of design criteria for sanitary engineering systems. Joint listing with the University of Idaho.

Engineering Aspects of Aquatic Chemistry 4(3-3) Prereq C E 451, 433. Chemical principles as applied to water supply and pollution control engineering.

Engineering Aspects of Aquatic Biology 4(3-3) Prereq C E 583. The role of microorganisms; bacteria, algae, fungi, viruses and protozoa in water and wastewater systems.

Classics

Clas (new prefix; changed from Latin) 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.

299 Readings from Latin Literature 4 V 1-4 May be repeated for credit. Prereq Clas 102.

Clothing, Interior Design, and Textiles

C T 216 Clothing Construction 3(2-3) Prereq C T 215, I D 101 or C E 101. Introduction to clothing construction and fitting principles.

217 Introduction to Clothing 2 Prereq Soc 101; Psych 101. Introduction to aesthetic, social, psychological, and economic aspects of clothing.

311 Flat Pattern 3(1-6) Prereq C T 216. Development of clothing design from a basic pattern.

477 Visual Merchandising 2(1-3) Prereq I D 101 or F A 103. Design principles and elements as they relate to display.

418 Clothing and Culture 3 hrs F A history. Socio-cultural aspects of clothing. (a/y)

413 Clothing Consumption 3 Prereq Econ 201 or 203, Mktg 560. The economic and social conditions which influence clothing consumption.


418 Fashion Theory 3 Prereq C T 417; Mktg 567. Social and economic developments in clothing.

450 Professional Internship V 1-2 May be repeated for credit; cumulative maximum 12 hours. Open to freshmen and sophomores. Supervised experience in an approved retailing firm, testing facility or fashion related business.

513 Experimental Clothing V 2-3 Prereq 6 hrs C T; 6 hrs social science. Concepts and theories in teaching textiles and clothing.

515 Textile Evaluation 3(2-3) Graduate level counterpart of C T 415; additional requirements. Credit not granted for both C T 415 and 515.

518 Topics in Clothing and Textiles V 1-3 May be repeated for credit; cumulative maximum 8 hours. Special topics in clothing and textile theory and research.

Communications

Enrollment in all 300- and 400-level courses, except Cine 323 and P R 312, is limited to certified Com majors or certified majors whose degree programs require these courses.

Com

470 Mass Communications Theories and New Theory Construction 3 Traditional and new theories of mass communications and the process of theory construction.
Computer Science

Cpt S

140 (200) [Z] Concepts of Computer Science History, architecture, uses, capabilities, and social implications of digital computers; interactive text editing systems.

150 Computer Program Design and Development Prereq Math 107; C/ in Cpt S 151, 152, 153, or 154. Formulation of problems and the top-down design of procedures for their solution on a digital computer; structures programming methodology.

151 FORTRAN Programming Laboratory 2 new 2(1-3) Prereq Cpt S 150 or C/ in Cpt S 151, 152, 153, or 154. Comprehensive programming practice using FORTRAN.

152 COBOL Programming Laboratory 2 new 1(3) Prereq Cpt S 150 or C/. Comprehensive programming practice using COBOL.

153 BASIC Programming Laboratory 2 new 1(3) Prereq Cpt S 150 or C/. Comprehensive programming practice using BASIC.

154 PASCAL Programming Laboratory 2 new 1(3) Prereq Cpt S 150 or C/. Comprehensive programming practice using PASCAL.

205 Computer Programming for Engineers 2(1-3) Prereq Math 171. Use of FORTRAN in solving problems related to engineering applications; WSU Scientific Subroutine Library; laboratory practice in programming. Credit not granted for both Cpt S 151 and 205.

240 (255) Programming Language V 1-3 May be repeated for credit; cumulative maximum 3 hours. Prereq Cpt S 150; Cpt S major. Advanced concepts of various programming languages. Continuation of Cpt S 151, 152, 153, and 154; or different programming language.

250 (215) Advanced Programming 3 Prereq Cpt S 150, 154. Advanced programming techniques; data structures and program design principles; nonnumeric computing.


316 Discrete Structures 3 Prereq Cpt S 150, 151, or 154; Math 220. Introduction to and applications of set theory, discrete structures, elementary logic, and combinatorics.

330 (310) Numerical Computing 3 Prereq Cpt S 150, 151; Math 172. Design and implementation of various numerical algorithms in FORTRAN; use of library routines in solving numerical problems.

335 (360) Principles of Organization Same as Math 364.

350 (325) Data Structures and Data Management 3 Prereq Cpt S 250; Cpt S major. Data structures and their applications in storage and file management and in data base systems.

360 (315) Systems Programming 4(3-3) Prereq Cpt S 250, 260; Cpt S major. Implementation of systems programs, concepts of computer operating systems; laboratory experience in using operating system facilities.

370 (320) Systems Analysis and Design 3 Prereq Cpt S 150, 152, or 154. Analysis and design of computer-based systems typically found in a business environment; related programming projects.

405 (460) The Design of Computer Systems 3 Not open to freshmen or sophomores. Design and implementation of computer systems; software packages for current systems in other disciplines; hands-on use. No previous computer experience required.

420 (414) Fundamentals of Digital Systems 3 Same as EE 414.

430 (448) Numerical Analysis 3 Same as Math 448.

437 (417) Introduction to Simulation 3 Same as QMath 417.

439 (470) Computer Methods in Probability and Statistics 3 Prereq Cpt S 150, 151; Math 172, 220; Stat 429 or 453. By invitation only. Use of computers to generate random variables and use them to illustrate, investigate, and develop results in probability/statistics.

450 (400) Design and Analysis of Algorithms 3 Prereq Cpt S 350, 316; Cpt S major. Analysis of algorithms and data structures; computational complexity and design of efficient data-handling procedures.

451 (401) Programming Language Design 3 Prereq Cpt S 350, 316; Cpt S major. Design concepts of high-level programming languages; syntax and semantics of several existing programming languages; compilers, interpreters, and formal syntax specification.

460 (402) Operating Systems and Computer Architecture 3 Prereq Cpt S 360; Cpt S major. Operating systems, computer architecture, and their interrelationships in micro, mini, and large computer systems.

465 (415) Microcomputer Systems and Programming 3(2-3) Prereq Cpt S 360; E E 214; Cpt S major. Microcomputer system architectures; microcomputer software; laboratory practice in programming microcomputers.

490 (498) Work-Study Internship V 3-9 May be repeated for credit; cumulative maximum 9 hours. Prereq Cpt S major. By invitation only. Experience in programming and systems analysis in a working environment under supervision of an industrial professional.

495 (465) Consulting in Computer Programming 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Cpt S 151, 152, 153, or 154; Cpt S 250, 260; Cpt S major. Consulting for students in Cpt S 151, 152, 153, 154, 250, and 260.

517 Complexity of Algorithms 3 Prereq Cpt S 316. Time and space complexity of algorithms; asymptotic optimality; searching, sorting, pattern-matching, and graph algorithms; parallel algorithms, reductions and NP-completeness.

518 (530) Programming Language Theory 3 Prereq Cpt S 316 or Math 421. Syntax, operational semantics.

531 (544) Computational Linear Algebra Same as Math 544.

532 (545) Advanced Numerical Analysis Same as Math 545.

535 (566) Topics in Optimization 3 Same as Math 566.

536 (510) Modeling and Simulation 3 Same as Math 510.

537 Artificial Intelligence 3 (Intelligent computer programs; simulation of cognitive processes.

542 (500) Graphics and Image Processing 3 Prereq Cpt S 364, 443. Raster and vector graphics; 2-D and 3-D representations, transformations, display and transfer techniques; image analysis, manipulations, and synthesis.

551 (511) Software Development 3 Top down development structure; database concepts; software development; programming teams.

554 (540) Database Systems 3 Prereq Cpt S 316. Data models; file organization and search; database system design.

555 (503) Compiler Theory and Design 3 Prereq Cpt S 364, 543. Compiling, parsing, code generation, code optimization; theory and practical implementation.

556 (502) Operating Systems 3 Prereq Cpt S 460. Structure of multiprogramming and multiprocessing; efficient allocation of systems resources; design, implementation, and performance measurement.

557 (514) Computer Architecture 3 Prereq Cpt S 460. Computer architecture; processor, memory, input/output, and system organization; pipeline, parallel computing and multi-processing, microprogramming; performance evaluation; distributed computing.

560 (320) Advanced Topics in Computer Science 3 May be repeated for credit.

596 Operating Systems Seminar 1 new.

597 Parallel Processing Seminar 1 May be repeated for credit; cumulative maximum 3 hours.

598 Computer Science Seminar 1 May be repeated for credit; cumulative maximum 3 hours.

Criminal Justice

Crm J

505 (605) Comparative Criminal Justice Systems 3 new Graduate level counterpart to Crm J 405; additional requirements. Credit not granted for both Crm J 405 and 505.

555 (655) Criminal Justice Research II 3 Graduate level counterpart to Crm J 455; additional requirements. Credit not granted for both Crm J 455 and 555.

570 (670) The Police and Society 3 Graduate level counterpart to Crm J 470; additional requirements. Credit not granted for both Crm J 470 and 570.

Economics

Econ

102 (515) Fundamentals of Macroeconomics V 3-4 Theory and policy related to un-
Improving knowledge and skills in planning systems, decision making, leadership, conflict, motivation, staff development, productivity and stress.

Electrical Engineering

521 Electrical Circuits II 3 Prereq E E 261 with grade of C or above; Math 315. Graphs, loop and cut-set analysis, state, and Laplace and Fourier transforms, network functions, frequency response, two-ports, energy and passivity.

351 Distributed Parameter Systems 3 Prereq E E 331. Transient line, high frequency electronics, antennas, fiber optics.

395 Internship in Electrical Industry I V 1-4 May be repeated for credit; cumulative maximum 6 hours. For sophomores and juniors in E E. Students work full time in engineering assignments in approved industries.

441 Digital Control Systems 3 Prereq E E 489 or c/. Data conversion and sampling, sample-data control systems, digital control systems analysis, computer-aided design and simulation microprocessor control.


476 Electronic Circuits 3 Prereq E E 311, 341, 489 or c/. 476, 477. Design with active elements; design of amplifiers, oscillators, and other circuits using semiconductor devices.

486 Power Electronics 3 Prereq E E 321. High power electronic devices; theory, limitations and applications; analysis and design of sources, motor controllers and switching circuits.

489 Introduction to Control Systems 3 Prereq E E 341. Analysis, synthesis, stabilization, and optimization of closed-loop systems.

493 Protection of Power Systems 3 Analytical and equipment fundamentals of power system protection; symmetrical components, relays, fuses and circuit breakers with burden and fault calculations.

494 Computer Modeling of Dynamic Systems 3 Prereq E E 489 or c/. Analog and digital computer simulation of systems in engineering, mathematics, and other selected disciplines.

501 Linear System Theory 3 Prereq E E 489. Dynamic systems from the state variable approach; observability, controllability, stability, and sensitivity of differential and non-differential systems.

502 Optimal Control Theory 3 Prereq E E 489. Nonlinear and sampled data sys-
339 Topics: Major Figures 3 May be repeated for credit; cumulative maximum 6 hours. Major figure or major group of figures in British, Continental, or American literature.

501 Topics in Teaching Writing 3 May be repeated for credit; cumulative maximum 9 hours. Theory and practice of the teaching of English composition from remedial to advanced levels.

544 TESOL: Theory and Methods 3 May be repeated for credit; cumulative maximum 9 hours. PreReq: Engl 543. Theoretical issues and practical experience in ESL, classroom instruction.

Entomology

201 Insects and Our Environment 2 The new world of insects, their natural history and relationship with humans and their environment.

528 High Voltage Engineering 3 new


551 Data Communication Networks 3 PreReq E 707. Packet switching networks; local area networks; polled and random access systems; routing; flow control; capacity assignments; statistical multiplexing systems; application.

586 Microprocessor System Design 3(2-3) PreReq E 414, 466 or CSE. Design with microprocessors and associated MSI and LSI devices in instrumentation, control, and other applications.

Environmental Health

Env H

365 Microbiology and Chemistry of Water new 3(1-0) Same as Bact 365.

420 Epidemiology 3 Same as Bact 420.

Environmental Science

Env S

427 (480) Environmental Chemistry 3 Same as Chem 427.

449 Local Government and Land Use Planning Law 3 Legal analysis of local government organization and powers; land use control. Cooperative course taught at the University of Idaho.

588 Land and Resource Regulation 3 PreReq new R P 550. Legal analysis of methods and concepts for non-law students in resource management. Cooperative course taught at the University of Idaho.

Fine Arts

F A

310 Women Artists in History 3 Same as new Women Art 310.

312 Drawing 3(0-6) May be repeated for credit. PreReq F A 103, 110 or 111.

315 Figure Drawing 3(0-6) May be repeated for credit. PreReq F A 103, 111.

320 Beginning Painting 3(0-6) 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 320.

423 Advanced Painting V 3(0-6) or 6(0-12) May be repeated for credit. PreReq F A 321.

433 Illustration V 3(0-6) to 6(0-12) May be repeated for credit. PreReq F A 111, 320. Editorial, scientific, and advertising. F A majors only.

434 Graphic Design V 3(0-6) or 6(0-12) May be repeated for credit. PreReq F A 351, 352. F A majors only.

442 Ceramics V 3(0-6) or 6(0-12) May be repeated for credit. PreReq F A 341. F A majors only.

452 Sculpture V 3(0-6) or 6(0-12) May be repeated for credit. PreReq F A 351. F A majors only.

471 Printmaking V 3(0-6) or 6(0-12) May be repeated for credit. PreReq F A 361. F A majors only.

485 Photography V 3(0-6) or 6(0-12) May be repeated for credit. PreReq F A 382. F A majors only.

Food Science

F S

301 (472) Dairy Products 2(1-3) PreReq Bact 101 or 201; Org Chem. Specialized techniques and practices of dairy product manufacturing and marketing. Field trip required.

303 (473) Meat and Poultry Products 3(2-3) PreReq Bact 101 or 201; Org Chem. Specialized techniques and practices of meat, poultry, and egg processing. Field trip required.

305 (471) Fruit and Vegetable Products 3(2-3) PreReq Bact 101 or 201; Org Chem. Specialized techniques and practices of fruit and vegetable processing. Field trip required.

304 (474) Cereal Products 2 PreReq Org Chem. Technical principles relating to the production and commercial processing of cereals and products of cereal foods. Field trip required.

401 Topics in Food Science V 1-3 May be repeated for credit; cumulative maximum 6 hours. Selected topics in food
Foreign Languages

For L

310 [H] Eastern Civilization 3 The development of eastern civilization as expressed through literary and cultural aspects.

324 Methods of Teaching Foreign Languages 3 Prereq: 2 yrs foreign language.

410 Racial aspects of language 3 new Used and misuse of color/race and sex in language and literature.

597 Seminar in Scholarly Methodology 2 Bibliography and formal aspects of scholarly writing; general introduction to literary criticism.

Forestry and Range Management

(Crefix changed from For to FRM)

FRM 100 Introduction to Forest and Range Management 1 Management of forests and rangelands; land use, basic ecological relationships, institutions, and job opportunities.

300 Professional Development 1 Organization of forest and range management agencies. 1 New

302 Advanced Forest and Range Environments 3 (2-2-3) Prereq FRM 301; Bot 332. Classification systems used in characterizing Pacific Northwest forest and range communities including indicator and economically important species.

304 Silviculture 3 Prereq FRM 301. Intermediate stand treatment and regeneration of the forest. Field trips required.

320 Timber Harvesting 3(2-3) Prereq FRM 304 or c/f. Not open to freshmen or sophomores. Current practices and problems; planning and coordinating timber harvesting with forest management.

330 (230) Wildland Fire Management 3 Causes, behavior, and effects of forest fires; techniques of prevention, presuppression, and suppression; uses of fire in wildland management.

400 (495) Professional Development 1 May be repeated for credit. Prereq FRM 399. Integration of summer professional experience with curriculum.

407 Forest Populations 1 Preregistration in CEFES Program. Concepts of genetics, population dynamics and pest management applied to forest management.

513 Forest and Range Policy and Administration 3 Development and administration of U.S. forest and range laws and policies.

542 Range Development and Improvements 3 (2-3) Prereq FRM 351. Application of recent developments and research to the planning and administration of rangeland. Field trip required.

546 Range and Ranch Planning 3(2-3) Prereq FRM 452; Ag Ec 340. Integration of principles of range science and management planning with applications of computer technology. Field trip required.

547 Timber Supply Economics 3 Prereq Econ 301; FRM 311; Math 141, 171, or 202. Economic analysis of public and private timber supply; Pacific Northwest.

516 Management of NIPFF Lands in the Pacific Northwest 1 Prereq FRM 415. Importance, problems, and opportunities for management of nonindustrial private forests in the Pacific Northwest. Field trip required. (a/f)

517 Advanced Forest Mensuration 1 Preregistration in CEFES Program. Evaluation of forest growth; yield in forest ecosystem management.

543 Population Management 2(1-3) Same as Entom 543. (a/f)

545 Advanced Forest Environments 4 Preregistration in CEFES Program. Meteorology, soils, and vegetation classification of forest environments.

581 Big Game Habitat Studies 1(0-3) Prereq FRM 480; c/f in FRM 519, 559, or 600. Development of big game habitat management decision models. Field trip over spring break required.

Fren

350 Advanced Intensive French for Undergraduate Students 6-3(9) Prereq Fren 303 or equivalent. Continuation of Fren 303. Continuation of Fren 303.

415 Introduction to French-Canadian Culture 2 Prereq Fren 322, 325, 335, or 334. An introduction to the history, arts, and literature of French-Canada. (a/f)

421 (425) French Literature of the Seventeenth Century 3 Prereq Fren 322, 325, or 335. Selected works and authors; the classical period. (a/f)

431 (432) French Literature of the Eighteenth Century 3 Prereq Fren 322, 325, or 334. French Enlightenment; selected writings of Montesquieu, Voltaire, Diderot, Rousseau, and others. (a/f)

501 (500) Seminar in Old French 3 Selected works and authors from the earliest texts to 1500. (a/f)

530 Advanced Intensive French for Graduates 3 Prereq Fren 303. Continuation of Fren 303.

551 (550) Seminar in Twentieth Century French Literature 3 May be repeated for credit; cumulative maximum 6 hours.

Genetics and Cell Biology

(prefix from Genet to GenCB)

GenCB

201 [B] Genetics and Society 3 Prereq HS or freshman biology. Introduction to the genetic background of current societal problems.


402 (302) General Genetics Laboratory 2 (0-6) Prereq GenCB 301 or c/f. Basic principles of modern and classical genetics utilizing several species.

430 (530) Human Genetics 3 Prereq GenCB 301 or 201. Exploration of individual and population genetics leading to critical discussion of current social, medical, and scientific issues.
450 Cell Biology 4 Prereq BC/BP 364; GenCB 301. Cellular structure and function.

485 Molecular Biology of the Gene V 2-4

Prereq elementary course in genetics. Molecular basis of genetics: DNA, RNA, protein biosynthesis, and genetic engineering. Cooperative course taught at the University of Idaho.

502 Microbial and Molecular Genetics 2 Prereq GenCB 301. Microbial and cell culture genetics and eukaryotic molecular genetics.


513 Forest Genetics 3(2-3) Prereq GenCB 301; course in silviculture. Application of principles of genetics to the improvement of trees and silvicultural practices. Cooperative course taught at the University of Idaho. (a/y)

514 Forest Tree Improvement 3 Prereq GenCB 301; course in silviculture. Practical problems and techniques related to genetic improvement of forest trees. Field trips required. Cooperative course taught at the University of Idaho. (a/y)

540 Cytogenetics 3 Prereq GenCB 301. Chromosome structure, behavior, and evolution; effects of changes in chromosome number and structure. (a/y)

562 Mathematical Genetics 3 Same as Stat 562. (a/y)

566 Biochemical Techniques 3(1-6) Same as BC/BP 566.

570 Plant Molecular Genetics 3 Prereq GenCB 302. Plant molecular genetics with emphasis on systems specific to plants and plant genetic engineering. (a/y)

573 Cellular and Molecular Aspects of Development 3 Same as Zool 573. (a/y)

475 Ground Water Hydrology 3 Prereq Geol 540 or C E 351. Fundamentals of ground water accumulation, storage, and flow; exploration and development.

490 Geology of Lower Salmon River Canyon 2 Field study of the geological formation of the Lower Salmon River Canyon utilizing a raft trip on the river.

491 Geology of Middle Fork Salmon River Canyon 2 Field study of the geological formation of the Middle Fork Salmon River utilizing a raft trip on the river.

498 Undergraduate Seminar 1 May be repeated 4 credit; cumulative maximum 54 hours. Prereq major in Geol or related field. Research papers presented by students, faculty, and visiting scientists on geological research.

500 Instructional Practicum 1 Pregrad student in Geol. By interview only. Instruction and practice of laboratory teaching in geology.

511 (510) Stratigraphic Paleontology 3(2-3) Prereq Geol 410. (a/y)

523 Advanced Topics in Stratigraphy 3 May be repeated for credit. Pregrad Geol 421. (a/y).

525 Sedimentology 3(2-3) Prereq Geol 420. Advanced problems and techniques in sedimentation. (a/y)

526 Engineering Geology and Geotechnics 3 Same as C E 526. Graduate level counterpart of Geol 426; additional requirements. Credit not granted for both Geol 426 and 526.

527 Sedimentary Petrology of Classic Rocks 3(2-3) Prereq Geol 420. Hand sample and thin section petrography and petrology of terrigenous sedimentary rocks. Cooperative course taught at the University of Idaho.

528 Sedimentary Petrology of Carbonate Rocks 3(2-3) Prereq Geol 420. Hand sample and thin section petrography and petrology of limestones and dolomites. Cooperative course taught at the University of Idaho.

529 Geologic Development of North America 3 Prereq Geol 410, 421. Sedimentation, tectonics, stratigraphy, of North America; Cordilleran geology. Field trip required. Cooperative course taught at the University of Idaho.


541 Structural Analysis 3(2-3) Prereq Geol 340. Structural analysis of complex deformed rocks in orogenic belts.

551 Ore Microscopy 3(0-9) Prereq Geol 335, 470. Identification of ore minerals using polarizing ore microscope; interpretation of ore textures; reflectance and rotation measurements; photomicrography; practical problems.

571 (570) Metallic Mineral Deposits 3 Prereq Geol 470. Modern advances in the genesis of metallic mineral deposits of magmatic, hydrothermal sedimentary, and metamorphic origin. (a/y)

577 Advanced Ground Water Hydrology 3 Prereq Geol/C E 475. Ground water flow systems; modeling and resource management.


594 Advanced Methods in Mineralogy and Geochemistry 4(3-3) Application of advanced methods to solve problems in mineralogy and geochemistry. (a/y)

598 Graduate Seminar 1 May be repeated for credit; cumulative maximum 3 hours. Prereq graduate student in Geol or related field. Field trips presented by students, faculty, and visiting scientists on geological research.

702 Masters Special Problems, Directed Study, and/or Examination Variable credit.

German

Ger

203 [H] Third Semester German 4 Prereq Ger 102. Cultural readings and exposition of grammatical concepts.

315 [H] Germanic Civilization I The cultural development of the German peoples to 1750; readings, lectures, and discussions in English.

316 [H] German Culture and Civilization 2 The cultural development of Germany from 1750 to the present; readings, lectures, and discussions in English.

History

Hist

102 [S] Modern Europe 3 War, revolution, industrialization, culture—18th to 20th centuries; imperialism, democracy, totalitarianism; Europe's leaders Napoleon to Hitler; post-WW II confrontations.

201 [S] Introduction to Asian American History 3 Same as ASST 201.

331 Race and Social History in Latin America 3 Social development of Blacks, Whites, and Indians in Latin America from the conquest to the modern era.

343 [H] History of England Since 1485 3 Continuation of Hist 342. Survey of English history from the reign of the first Tudor monarch, Henry VII, to the present welfare-state era.

390 Introduction to Musicology History 3, history, and practice of museums; field trips. Cooperative course taught at the University of Idaho.

407 American Urban History 3 Process of urbanization and related developments in American history from the 17th century to the present. Credit not granted for both Hist 407 and 507. (a/y)

415 New American Republic 1788-1845 3 Social and political history of the United States from 1789 to 1845;杰斐逊、安德森和杰克逊的公共政策; C E 317, 318. Mechanical behavior and properties of rocks using data from laboratory experiments and field observations.

4 Prereq and expansion

The eclectic pragmatists, and the evolution of the 20th century, and the Napoleonic Confrontation.

American Civil War:

1845 - Survey of the 4

History: field hist at the process of the 17th century (granted in 1845)

Technology of the early 1845 - Jel 81

Credit and 81st 3 Full requirement c 554 North for both

526 Seminar in Public History 3 The development of skills at the graduate level to be used in non-traditional careers for historians.

536 (536) Seminar in Latin American History 3 May be repeated for credit. Pre-req 12 hrs Hist.

543 Historical Archaeology 3 Excavation and analysis of historical archaeological sites; archaeological implications. Cooperative course taught at the University of Idaho.

544 Europe: Postwar to Detente 3 Graduate level counterpart of Hist 450; additional requirements. Credit not granted for both Hist 450 and 550.

553 Modern Britain 3 Graduate level counterpart of Hist 459; additional requirements. Credit not granted for both Hist 459 and 550.

567 The Enlightenment 3 Graduate level counterpart of Hist 467; additional requirements. Credit not granted for both Hist 467 and 550.

569 Field Course in Modern European History 3 May be repeated for credit; cumulative maximum 6 hours. Readings and interpretative problems of European History.

585 (585) The Teaching of History in College I Theory, problems, and methods of teaching history at the college level.

Horticulture

Hort 201 Plant/Environment Relations 4(3-3) Plant development and the environmental factors influencing propagation, productivity and post harvest quality of horticulturally important crops.

251 Propagation of Plants 3(2-3) Prereq Hort 101 or 201 or Bot 201. Principles and methods of manipulating herbaceous and woody plants and their handling up to transplant size. Field trip required.

334 (335) Greenhouse Construction and Management 3(2-3) Prereq Hort 201; Soils 201; 1 yr Chem. Methods and materials; heat, ventilation, and light control; soil, fertilizer, and water management as related to greenhouse production. Field trip required.

354 (354) Nursery Practices and Management 3(2-3) Prereq Hort 251, 334; 1 yr Chem. Establishment and management of wholesale and retail nurseries. Field trip required. (a/y)

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. Joint listing with the University of Idaho. Credit not granted for both Hort 240 and 520. (a/y)

445 (445) Plant Breeding 3 Same as Agron 445.

509 Seminar 1 May be repeated for credit; cumulative maximum 4 hours. Continuous enrollment required of regularly enrolled graduate students in Hort. Recent developments in horticulture.

510 Graduate Seminar 1 May be repeated for credit; cumulative maximum 2 hours. Literature reviews and research progress reports.

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.

19

19

Hotel and Restaurant Administration

H A

280 Lodging Systems and Procedures 3 Prereq H A 181; Accctg 250. Management functions relating to the planning and operational policies of various hotel departments.

310 Hospitality Industry Financial Control 3 Prereq Accctg 250, 251. Internal control through financial and accounting systems for hotels and restaurants.

356 Food and Beverage Systems Design and Analysis 3 Prereq H A 280. Management theory, problems, and cases in food and beverage operations; work methods; sanitation; research.

357 Food and Beverage Systems Control 3 Prereq H A 351. Problems encountered in the management of food and beverage operations such as control and forecasting.

381 Hospitality Management and Organization 3 Prereq H A 181. Advanced management methods and concepts utilized in the administration of hospitality service industries.

480 Marketing Strategy and Development 3 Prereq Mktg 360. Theory and practice; problems in guest relations, special sales efforts, intramural promotion, research.

493 Case Studies and Research 3 Prereq H A 357. Use of the case method and computerized statistical programs in the analysis of administrative practices of organizations.

496 Seminar V 1-3 May be repeated for credit; cumulative maximum 6 hours. By interview only. Selected topics.

HASN (Seattle Center)


310 Hospitality Industry Financial Control 5 Prereq Accctg 250, 251. Internal control through financial and accounting systems for hotels and restaurants.

315 Managerial Economics in Service Industries 5 Prereq Econ 102, 203. Economics of the firm; economic tools and formal decision making applied to cash flow; resource allocation; and cost minimization.

494 Service Operations Management 5(qtr) Design and management of service delivery systems through operations management topics from a services perspective.

Human Nutrition and Foods

HNF

233 Human Nutrition 3 Prereq one course new in Chem. Principles of human nutrition applicable to all ages of human development; impact of environment, economics, culture on food and nutrition. Credit not granted for both HNF 130 and 233.

381 Quantity Food Purchasing 2 Prereq HNF 280; HNF 281 or 282. Purchasing process; specifications, receiving, storage, and inventory control.
forms from prehistoric periods through the Gothic period.

212 (372) History of Design II 3 Prereq I D 211. Interiors and furnishings from Renaissance period through the contemporary movement in Europe and the United States.

221 (170) Fundamental Residential Planning 3(1-4) Prereq I D 105. Design investigation of interior spaces of limited size and complexity for people of varying social, economic, educational, and cultural backgrounds.

222 (271) Advanced Residential Design 3 (1-4) Prereq I D 221. Design of multifunctional, multiunit living environments; future trends in urbanization, technology, and population needs in housing.

333 (370) Fundamental Commercial Planning 3(1-4) Prereq I D 105. Design of commercial environmental situations to aid students in developing insights into needs of the corporate client.

334 (371) Advanced Commercial Design 3 (1-4) Prereq I D 333. Complex commercial design problems; problem identification and design development through collaborative efforts of a design team.

401 (475) Residential Interior Design 3 (2-2) Prereq I D 101 or F A 103; CPS 350. For non-majors only. Elements and principles of design as they relate to interiors.

425 Senior Thesis in Interiors 4(1-6) Prereq I D 222, 334. Supervised development of design solutions and working drawings for residential/commercial thesis projects based upon program needs of real clients.

450 (375) Professional Internship V 1-12 May be repeated for credit; cumulative maximum 12 hours. Prereq I D 354. Supervised experience in an approved design firm or related business. Academic supervision by faculty adviser; professional supervision by project manager.

491 (479) Seminar I may be repeated for credit; cumulative maximum 4 hours.

501 (570) Advanced Design Theory 3(1-6) Prereq I D 436. Current research in environment or product design and development.

502 (575) Topics in Interior Design V 1-3 May be repeated for credit; cumulative maximum 6 hours. Perception and use of interior space on human behavior and interaction patterns in both residential and commercial interiors.

### Italian

303 Intensive Italian 10(5-15) Provides advanced knowledge of listening to, speaking, reading, and writing Italian. For students with little or no experience in Italian. Open to undergraduate and graduate students.

### Journalism

125 Press and Society 3 new

430 Critical Writing 2

### Landscape Architecture

L A

450 Principles and Practice of Planning 3 new As same as R P 450.

468 Advanced Projects in Planning and Design 5(0-15) Prereq L A 467. Individual or group studio project in landscape architectural design or regional planning; explores advanced techniques, methods, and programming.

480 Professional Practice 1 Prereq senior in new L A. Current business practices and project management techniques used in the profession.

### Latin

The prefix Latin (Lat) has been changed to Classics (Clas).

### Materials Sciences and Engineering

MSE

331 Process Metallurgy 3 Prereq Chem 103; Phys 201 or c//. Mineral preparation, steel making, extraction, and refining of selected metals; casting, working, machining, welding; powder metallurgy; heat treatment of metals.

410 (352) Metallic Materials 3 Prereq MSE 301. Physical metallurgy of engineering metals and their alloys.

412 (414) Thermodynamics and Phase Equilibria 3 Prereq c// in MSE 301; Phys 202. Concepts of activity, equilibrium, solution properties; relationship between free energy, composition, and temperature; heterogeneous equilibria.

414 Equilibrium Diagrams 2 Prereq MSE 301, 412. Interpretation of equilibrium diagrams; ternary systems; pressure-temperature relationships. (a/y)

416 Phase Transformations 3 Prereq MSE 301, 421, 412. Thermodynamics of solid phase; mechanisms and kinetics of diffusion; nucleation and growth; recrystallization; boundary migration; eutectics and martensitic transformation.

418 Chemical Properties 3 Prereq MSE 301, 412. Thermodynamics and kinetics of heterogeneous chemical reactions at metallic surfaces; oxidation and other gas-metal reactions; corrosion. (a/y)

425 Physical Metallurgy Laboratory 2(0-6) Prereq c// in MSE 416. Selected experimental work in physical metallurgy.

426 Physical Metallurgy Laboratory 2(0-6) Prereq MSE 425. Selected experimental work in physical metallurgy.

503 Advanced Topics in Materials Engineering 3-1 May be repeated for credit; cumulative maximum 6 hours.

508 (304) Fundamentals of Research and Development of research projects, research plans, oral presentations, publications. Cooperative course taught at the University of Idaho.

522 Advanced Topics Laboratory 1 or 2 new May be repeated for credit; cumulative maximum 4 hours. Electron diffraction, microscopy, rheology and other laboratory techniques.
Mathematics

Math

05 [Z] Mathematics for Elementary Education I 3 Number systems, informal geometry, measurement, probability, problem solving, use of hand-held calculators.

06 [Z] Mathematics for Elementary Education II 3 Prereq Math 105. The nature of mathematical thought; patterns, concrete foundations of the natural and rational number systems, the development of mathematical operations.


23 General Topology 3 Prereq Math 371. Sets, metric spaces, topological spaces; continuous mappings, compactness, connectedness, local properties, function spaces, and fundamental groups. Credit not granted for both Math 425 and 525.

25 Astronomy and Astrophysics 3 May be repeated for credit; cumulative maximum 6 hours. Same as Astr 435.

466 Optimization in Networks 3 Prereq Math 364 or 325. Formulation and solution of optimization problems including shortest path, minimum cost flow, assignment, covering, postman, traveling salesman and location.


25 General Topology 3 Graduate level credit granted for Math 425; additional requirements. Credit not granted for both Math 425 and 525.

526 Advanced Topology 3 Prereq Math 421; Math 425 or 525. General topology; basic ideas of algebraic topology.

602 Internship V 2-12 May be repeated for credit. Prereq 40 hrs in DA program. Three to nine month internship; teaching at the postsecondary level or applied work in non-academic environment.

Mechanical Engineering

ME

212 Systems Design 2 Prereq Math 172; Cpt S 203 or C/; Phys 201 or C/; Application of design and experimentation to mechanical engineering problems.

302 Thermodynamic Systems 3 Prereq Chem 106; M E 301; major in Engr. Power and refrigeration cycles, thermodynamic relations, mixtures and solutions, reaction systems and application to combustion processes; phase and chemical equilibria.

313 Engineering Analysis 3 Prereq Math 315; Cpt S 203; major in Engr. Analysis and modeling of engineering problems utilizing numerical and mathematical techniques and the computer, including the analog computer.

348 Dynamic Systems 4(3-3) Prereq M E 313. Fundamentals of vibration analysis, control systems, system modeling, and dynamics analysis; laboratory investigations.

404 Heat Transfer 3 Prereq M E 303; major in Engr. Conduction, radiation, and convection heat transfer; analytical, numerical, experimental results for solids, liquids, and gases; heat exchanger design.

416 Design of Engineering Systems 3(1-0) Prereq M E 301; M E 312, 414; major in Engr. Design of mechanical systems integrating thermal sciences and solid-body mechanics aspects.

419 Air Conditioning 3 Prereq M E 302, 404. Principles of heat and moisture transfer; air motion and purity in buildings; design of systems.

435 Thermal Systems 3 Prereq M E 302; M E 404 or C/. Thermal systems of current interest in processes and power industries; combustion, cryogenics, direct energy conversion, nuclear power.

481 Control Systems 3 Prereq M E 348. Analysis and design of feedback control systems. Credit not granted for both M E 481 and 581.

473 Computer-Aided Design 3(2-3) Prereq Cpt S 203; M E 315; major in Engr. Interactive computer programming and graphics in the design of engineering systems.


522 Viscous Fluid Flow V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq M E 521. Properties of real fluid flow, solutions of Navier-Stokes equations, concepts of the boundary layer, transition and turbulence.

525 Potential Flow 1 Prereq Math 440. Potential flow over cylinders, airfoils, vortex motion and axisymmetric flows.

New C E 550.

Basic Medical Sciences

Med S

516 Biology of Cells 2 For WAMI students only. Human cell biology basic to other medical sciences courses; structure, function, differentiation and interaction.

Military Science

Mil S

101 The United States Army 1 Role of the Army in contemporary society.

102 National and International Role of the Army 1 Role of the Army in today's international affairs.

110 Cougar Rangers I 1 Military adventure training, pioneering activities, military skills and small unit tactics. Field trip required.

111 Cougar Rangers II 1 Military adventure training, pioneering activities, military skills and small unit tactics. Field trip over spring break required.

201 Introduction to Leadership 2 Multidisciplinary approach to military leadership.

202 The Officer as a Professional 2 U.S. Army Officer Corps as a profession; the U.S. Army Officer as a professional.

206 Military Science Overview 5 Preparation for advanced military science program; map reading, tactics, leadership, U.S. military history, fundamentals of army duty.

301 Applied Leadership and Management 3 Troop leadership procedures emphasizing instruction in military professionalism and ethics; practical aspects of tactics and leadership practice.

302 Small Unit Tactics and Military Leadership 3 Preparation, delivery, and critique of practical oral presentations; leadership of small units; offensive, defensive and retrograde operations.

310 (210) Advanced Summer Camp 6 Prereq Mil S 301, 302. By interview only. Intensive study and internship in military tactics, command and leadership; held at an active Army post.


401 Advanced Military Leadership 3 Historical and legal basis of military justice; small unit management; military professionalism and ethics.

402 Advanced Military Management and Practicum 3 Theory and practice of Army administration/management; staff planning and correspondence; pre-commission orientation; unit management/resourses application.

Music

Mus

229/429 Ensemble Laboratory 1(0-3) May be repeated for credit; cumulative max-
uniform 8 hours. By audition only. Additional performance preparation and experience for selected students in vocal and instrumental emphases.

244/444 Marching Band/Varsity Band 1 (0-3) May be repeated for credit; cumulative maximum 4 hours. Open to all university students by audition.

352 Applied Theory I (0-3) Prereq Mus 254. Continued musical development in ear training, sight singing, applied theory, keyboard dictation.

354 Applied Theory I (0-3) Prereq Mus 352.

360 History of Music I: Baroque and Classic Periods 3(2-3) Prereq Mus 251, 252, 161. Development and change in the musical culture of Western Europe from 1600 to 1815.

361 History of Music II: Romantic Period and the 20th Century 3(2-3) Prereq Mus 251, 252, 360. Development and change in the musical culture of Western Europe and the U.S. from 1815 to the present.

371 Diction for Singers I 2 Prereq Mus 303.

372 Diction for Singers II 2 Prereq Mus 303. French and English; 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. Movement, singing, listening and instrumental resources appropriate for use in the elementary grades.

390 Instruments for Elementary Education 3 Prereq Educ 300. Skill building and teaching methods in percussion, melody and harmony instruments for use in the elementary grades.

393 Wind and Percussion Techniques I 2 new (0-6) Prereq Mus 152. Brass, woodwind and percussion techniques; elementary instrument conducting.

394 Wind and Percussion Techniques II 2 new (0-6) Prereq Mus 152. Brass, woodwind and percussion techniques; elementary instrument conducting.

451 Modal Counterpoint Seminar 2 May be repeated for credit; cumulative maximum 4 hours. Prereq Mus 353. Counterpoint techniques of the 16th century with original writing in the style.

452 Tone Counterpoint Seminar 2 May be repeated for credit; cumulative maximum 4 hours. Prereq Mus 353. Counterpoint techniques of the early 18th century with original writing in the style.

455 Seminar in Instrumentation 2 May be repeated for credit. Prereq Mus 352. Surveying various instrumental combinations.

464 Seminar and Colloquium in Music 2. Developing a critical attitude toward the composition and performance of music of all periods; aesthetic success, style, and performance.

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.

483 Ensemble Conducting 1(0-3) Prereq Mus 482. Practical laboratory experience directing musical groups in rehearsal.

490 Materials and Methods for Music Teachers 2 or 3 Current programs and trends in the teaching of music on the elementary level; Delacroix, Kodaly, Orff, Manhattanville, and ETM.

522 Graduate Recital 2 May be repeated for credit; cumulative maximum 4 hours. Private screening and public performance as required within each performance emphasis.

550 Seminar in Analysis 2 May be repeated for credit; cumulative maximum 4 hours. Prereq Mus 453 or c/. Application of analytical techniques to develop a basis for musical understanding and interpretation.

554 Seminar in Twentieth Century Styles 2 Original writing utilizing contemporary idioms. (a/fy)

561 Seminar in Literature of Twentieth Century Music 2 Prereq Mus 351. Impressionism, expressionism, neoclassicism, neoromanticism, jazz, and modern electronic music. (a/fy)

575 Advanced Conducting 2 or 3 May be repeated for credit. Prereq Mus 482. Rehearsal of orchestras, bands, and choirs. Public performance may be required.

Nursing

306 Clinical Nursing I 10(4-18) Prereq junior in Nurs; Nurs 305. First Aid or c/. Holistic view of nursing process; assessment/interventions for individuals of all ages and mild stress situations; clinical application.

315 Scientific Concepts for Nursing 4(3-3) Prereq Nurs 305, 306; junior in Nurs. Selected pathophysiological processes with resultant physiological implications from conception through death; philosophical, ethical, and practical aspects.

410 Advanced Concepts in the Care of the Newborn 3 Prereq Internally. Critical Illness and Injured Patient 3 to 5(3-6) Prereq senior in Nurs; Nurs 406. Open to RN with basic critical care course. Exploration of nursing care of critically ill patients; new and advanced concepts.

411 Emergency Nursing V 3 or 4(3-3) new Prereq senior in Nurs; Nurs 406 or RN. Application of the nursing process to clients and families experiencing traumatic injury/sudden illness; examination of emergency health care delivery.

Nutrition

312 Vitamins 2 Same as A S 312. (a/fy)

Pharmacy

310 The Pharmacist and Social Health 2 new Prereq c/. in Bact. 101. The pharmacist's role in individual and group health problems.

311 Pharmaceutics I 3 Prereq Chem 340. new Theory, preparation, and application of solution dosage forms.

312 Pharmaceutics II 3 Prereq Pharm 311 new Theory, preparation, and application of solid, semisolid, and dispersed liquid dosage forms.

313 Pharmacology Laboratory I 3(0-3) Prereq Pharm 311 or c/. Laboratory in the preparation of solution dosage forms.

314 Pharmacology Laboratory II 3(0-3) Prereq Pharm 312 or c/. Laboratory in the preparation of solid, semisolid, and dispersed liquid dosage forms.

341 Beginning Pharmacognosy 3 Prereq Chem 342. Pharmacognosy of drugs of natural origin; the classes carbohydrates, glycosides, amino acids, fixed oils, waxes, volatile oils, resins, and alkaloids.

342 Pharmacognosy 4 Prereq Chem 342. Continuation of Pharm 341. poisonous plants, pharmacy important enyzymes, vitamins, antibiotics, allergens, and biologicals.

404 Hospital Pharmacy 2 Prereq Pharm 400 or c/. By interview only. Responsibilities and services of institutional pharmacists in various hospital settings: distribution systems, quality control, pharmaceutical services, polices, and procedures, and quality control.

410 Therapeutic Agents 3(1-6) Prereq Pharm 411, 436, 472. Professional practice in applying principles of pharmacotherapeutics, medicinal chemistry, and pharmacology to selecting therapeutic products, dispensing procedures; clerkship preparation.

411 Pharmaceutics III 3 Prereq Pharm 312 new Kinetics of drug absorption, distribution, and elimination; dosage regimen design; bioavailability.

412 Pharmaceutics Laboratory III 3(0-3) new Prereq Pharm 312. Advanced techniques for the extemporaneous compounding of dosage forms; I.V. admixtures.

416 Biopharmaceutics I 3 Prereq Pharm 415. Drug form evaluation with respect to the stability, availability, absorption, distribution, and excretion of drugs; allied analytical procedures.


423 Pharmacodynamics 5 Prereq Pharm 421. Pharmacodynamics and medical chemistry of the classical drugs.

437 Pharmacology Laboratory 1(0-3) Prereq Pharm 411 or c/. Pharm 472 or c/. Drug pharmacodynamics and pharmacokinetics.

482 Pharmacy Law 2 Laws relating to pharmacy practice.

484 Pharmacy Administration 3 Prereq new Econ 201. Problems and procedures in the establishment and management of a pharmacy.

561 Advanced Pharmacology-Toxicology 4 Prereq Pharm 472. Advanced concepts in physiologic and physical sciences.
and applications of drug action. (a/y)
Advanced Pharmacology-Toxicology II
3 Prereq Phar 561. Continuation of Phar 561.

I philosophy
3 Preq Phar 111, 112, 113.

(415) Seminar on Analytic Philosophy
3 Preq Phil 101. The analytic tradition: Moore, Wittgenstein and others.
(a/y)

(435) Seminar in Theory of Knowledge
3 Preq Phil 101 or 201. Problems of immediate knowledge and mediately
knowledge, modes of cognition. (a/y)

(440) Seminar on Metaphysics
3 Preq 9 hrs Phil. Theories of self, world, God, nature of being. (a/y)

(455) Seminar in Religious Studies
3 May be repeated for credit; cumulative maximum 6 hours. Senior seminar for majors
in religious studies. (a/y)

(550) Seminar in Philosophical Psychology
3 Preq Phil 101, 201, 435, or 9 hrs Phil. Theories of mind, self,
mentality, psychological states
and human actions. (a/y)

(510) Seminar in History of Philosophy
3 May be repeated for credit. Preq 6 hrs Phil.

I Physical Education—Activity Courses

<table>
<thead>
<tr>
<th>PE/WPE</th>
<th>Sport Conditioning</th>
<th>No Credit</th>
<th>Out-of-season conditioning for varsity sport participants and other interested students.</th>
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<tbody>
<tr>
<td>Phar 312</td>
<td>Scuba Diving</td>
<td>2</td>
<td>Lifesaving 2</td>
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**Physical Education**

1 **Art and Science of Movement**

1 **Fitness 2(1-3)** Introduction to skills and progressions in fitness.

1 **Tumbling and Trampoline 1**

1 **Skills and techniques in trampoline, floor exercise plus teaching methods and spotting.**

1 **Gymnastics Apparatus 1(0-3)**

1 **Skills and techniques in pommel horse, rings, vaulting, parallel bars, horizontal bars and spotting.**

1 **Introduction to Recreational Dance 2**

1 **Modern/Ballet 1(0-3)**

1 **Track 1(0-3)** Introduction to skills and progressions in track.

1 **Field Events 1(0-3)**

1 **Tennis 1(0-3)**

1 **Badminton 1(0-3)**

| 122 | Golf 1(0-3) | Introduction to skills and new progressions in golf. |
| 123 | Bowling 1(0-3) | Introduction to skills and progressions in bowling. |
| 124 | Field Sports 1(0-3) | Techniques, individual and team tactics, and officiating. |
| 125 | Volleyball 1(0-3) | Techniques, individual and team tactics, and officiating. |
| 126 | Basketball 1(0-3) | Techniques, individual and team tactics, and officiating. |
| 127 | Softball 1(0-3) | Techniques, individual and team tactics, and officiating. |
| 129 | Disciplines of Human Movement 2 | For freshmen and sophomores only. Related areas of prephysical therapy and coaching. |
| 266 | Care and Prevention of Athletic Injuries 1 | Preq PEP 261 or 330. |
| 313 | Motor Skill Acquisition 1 | Preq PEP 100-level skills classes. The learner as a model to input-output feedback system; implications for the acquisition of perceptual and motor skills in the schools. |
| 314 | Advanced Analysis of Performance in Individual Sports V | 1-2 May be repeated for credit; cumulative maximum 4 hours. Preq appropriate 100-level skills class or competency exam; PEP 313. Analysis of performance with implications for teaching of selected motor activities: track, field events, tumbling, apparatus. |
| 316 | Recreational Dance for the Teacher V | 1(0-3) to 2(0-6) Same as RLS 316. |
| 317 | Modern/Jazz/Ballet | 1(0-3) to 2(0-6) Preq PEP 117 or competency; PEP 313. Methods and materials for the teaching of modern dance, jazz dance, and ballet. |
| 320 | Advanced Analysis of Performance in Recreational Sports V | 1-2 May be repeated for credit; cumulative maximum 4 hours. Preq appropriate 100-level skills class or competency exam; PEP 313. Analysis of performance with implications for teaching of selected motor activities: tennis, badminton, golf, bowling, lifetime sports. |
| 327 | Dance/Movement Therapy 1 | Preq 101 or 102. Theories, methods, and practice in dance/movement therapy. (a/y) |
| 354 | Creative Rhythms for Children 1 | Not open to freshmen or first semester sophomores. Rhythmic activities used by elementary school teachers. |
| 382 | Secondary Physical Education Programs 1 | Preq PEP 313, 300; major or minor in PE. Methods, materials, and directed teaching in secondary school physical education activities. |

**Physics**

303 Modern Physics 3 Preq Math 172; Phys 202. The quantum theory and relativity with applications from atomic, nuclear and solid state physics.

345 Astronomy and Astrophysics 3 Preq Phys 330; Math 440. Physical theories of equilibrium thermostatics and irreversible thermodynamics with applications in thermomagnetics, superfluids, and superconductivity.

350 Quantum Mechanics 3 Graduate level counterpart of Phys 450; additional requirements. Credit not granted for both Phys 450 and 550.

561 Atomic and Molecular Physics 3 Graduate level counterpart of Phys 461; additional requirements. Credit not granted for both Phys 461 and 561.

563 Physics of the Solid State 3 Graduate level counterpart of Phys 463; additional requirements. Credit not granted for both Phys 463 and 563.

565 Introductory Nuclear Physics 3 Graduate level counterpart of Phys 465; additional requirements. Credit not granted for both Phys 465 and 565.

598 Teaching Physics Undergraduate 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.

**Plant Pathology**

330 Introductory Plant Pathology Laboratory (0-3) Preq Pl 329 or C/.

Laboratory study of plant diseases, their
Political Science

Political Science

Pol S

317 Mass Media and the Political Process
3 Relationship between the media and American political institutions and the public. (a/y)

410 Government of Canada 3 Political institutions and processes of Canada. (a/y)

462 Human Issues in International Development 3 Same as Alg S 462.

472 Governments of Great Britain and new France 3 Political institutions and policy-making processes in Great Britain and France. Credit not granted for both Pol S 472 and 572.

473 Governments of German Federal Republic and Italy 3 Political institutions and policy-making processes in the German Federal Republic and Italy. Credit not granted for both Pol S 473 and 573.

497 Political Science Internship V 1-12 May be repeated for credit; cumulative maximum 12 hours. Prereq Pol S 101 or 206. Participation as intern in federal, state, or local governmental unit.

572 Governments of Great Britain and new France 3 Graduate level counterpart of Pol S 472; additional requirements. Credit not granted for both Pol S 472 and 572.

573 Governments of the German Federal, new Republic and Italy 3 Graduate level counterpart of Pol S 473; additional requirements. Credit not granted for both Pol S 473 and 573.

Psychology

Psych

363 Psychology of Aging 3 Prereq Psych 101 or 102; one Bio S course. Psychological processes of aging; changes in sensory, motor, cognitive, emotional, and personality characteristics; research in aging. Commt.

Viral Infection in plants is due to viruses. In plants, viruses infect specific areas of the plant, causing symptoms such as stunting, chlorosis, and clubroot. Further study of the role of viruses in plant diseases is necessary.
Processes 3 Theoretical and technical aspects of social legislation; its creation and dissemination to social workers in delivering services through government. Community Organization II: Methods and Implementation 3 Prereq S W 393. Theory and practice in organizing community efforts to confront and deal with changing social problems.

Social Work Theory and Methods I 3 Prereq S W 190. Social work values, ethics, skills, theoretical, and technical aspects of working with individuals, families, groups, and communities.

Social Work Theory and Methods II 3 Prereq S W 190. Theoretical and technical aspects of contemporary theories of counseling; use of community resources, community change, social action.

Soils 315 Fundamentals of Remote Sensing 1 Physical basis of remote sensing, characteristics of aerial photographs, reflectance from earth surface features. 316 Forestry Application of Airphoto Interpretation 1 3 Prereq Stereovision; S 315 or S 471. Characteristics of aerial photographs, basic photogrammetry applied to forest management.

Soil Analysis 1 3 Prereq S 400 or S 402. Chemical characterization of soils for diagnostic purposes.

Soil Fertility 3 Prereq S 301. Plant nutrient requirements, principles of soil testing and tissue analysis; current fertilizer technology, fertilizer reactions in soils.

Microbiological Laboratory 1 3 Prereq S 407 or S 471. Characterization of soil microorganisms and microbial processes.

Remote Sensing Applied to Terrain Evaluation 3 Prereq S 302 or S 321. Probability theory, inference theory; one- and two-sample tests; regression and correlation analysis; log-linear models for contingency table analysis.

Sociology 570 [5] Personal Identity and Social Interaction 3 Development of personal and social identities; social interaction as it affects individual behavior; group dynamics, conformity, and influence.

Quantitative Techniques in Sociological Research 1 3 Prereq Soc 320. Levels of measurement; measures of central tendency, dispersion and association; probability, normal curve; use of computer packages as learning tools.

Quantitative Techniques in Sociological Research 2 3 Prereq Soc 320, 321. Probability theory; inference theory; one and two sample tests; regression and correlation analysis; log-linear models for contingency table analysis.

Sociology and Public Policy 3 Prereq Soc 320. Relationship between sociology and public policy; effective utilization of concepts and methods in applied settings. Credit not granted for both S 424 and 524.

Sociology and Public Policy 3 Graduate level counterpart of Soc 424; additional requirements. Credit not granted for both Soc 424 and 524.

Demography 3 Prereq Soc 450. Population studies; causes, effects, and measurement of changes in fertility, mortality, and migration; population estimation and projection.

Human Ecology 3 Ecosystem context of human life; change viewed ecologically; sociological use and misuse of ecological concepts; issues in theory and research.

Social Impact Assessment 3 Sociology's contributions to environmental impact assessments; methods, contents and contents of assessing social impacts of proposed developments.

Sociology of Aging 3 Theory and methods in social gerontology; effects of age and aging on human behavior and social interaction.

The Sociology Profession 1 May be repeated for credit; cumulative maximum 2 hours. Requirements, operations, problems, and possibilities of the sociology profession.

Spanish

Span 198 Beginning Spanish Honors 4 Prereq S 198. Language aptitude test. Spanish language skills and cultural appreciation of Spanish speaking peoples.

Continuing Spanish Honors 4 Prereq Span 198. Continuation of Span 198.

Speech

Sp 118 Voice and Diction for Foreign Students 2 2 May be repeated for credit; cumulative maximum 4 hours. Introduction to production of the sounds and pattern of general American speech.

Spanish

Stagecraft 3 Prereq major in RLS Drama techniques applied to a recreation setting; organizing and leading drama activities for all ages: creative drama, story telling, and theatre.

Stage Costuming 3 Prereq Basic costume construction techniques, sewing skills, measurement, patterns, fabrics, draping for the stage.

Creative Dramatics 3 Not open to students required to take Sp 206. Philosophy and techniques of informal drama; contemporary classroom and other uses.

Phonetics 2

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.

Application of Communication Theory 3 Extant communication theory; its application in an occupational setting.
audiology for the differential diagnosis of auditory pathologies; considerations for geriatric clients.


588 Phonological Acquisition and Behavior new 3 Prereq 376. Current literature in articulatory development and deviancy; diagnosis and therapy. (a/sy)

Statistics

Stat


420 (492) Statistical Analysis of Qualitative Data 3 Prereq Math 202 or Math 140 and a previous course in statistics. Binomial, Poisson, multinomial distribution; contingency tables, Fisher's test, loglinear models; ordinal data; applications in biology, business, psychology, and sociology.

430 Statistical Methods in Engineering 4 Same as Biostat 450.

444 Introduction to Statistical Theory 3 Prereq Stat 443 or Biostat 430. Sampling distributions; hypothesis testing and estimation; maximum likelihood; likelihood ratio tests; theory of least squares; nonparametric.

472 Statistical Packages 1(0-3) May be repeated for credit; cumulative maximum 6 hours. Prereq 372, 472. Computer applications in selected statistical packages; statistical techniques, data management, terminal use, data structures, graphical algorithms.

512 Analysis of Variance and Experimental Design 3 Same as Biostat 512.

514 Nonparametric Statistics 3 Prereq new Biostat 512. Development of basic nonparametric tests including their power, efficiency, and ARE. Cooperative course taught at the University of Idaho.

516 Time Series 3 Same as QMath 516.

519 Applied Multivariate Analysis 3 Same as QMath 519.

521 Multivariate Analysis 3 Prereq Math new 230; Biostat/Stat 512. Multivariate normal distribution, principal component analysis, factor analysis, analysis of variance, multivariate general linear model, discriminant analysis, correlation matrix, principal component analysis, Cooperative course taught at the University of Idaho.

530 Applied Linear Models 3 Same as Biostat 530.

531 Econometrics 3 Same as Econ 511.

533 Linear Model Theory 3 Prereq Stat 443; Math 420. Theoretical basis of linear regression and analysis of variance models; a unified approach based upon the generalized inverse. Cooperative course taught at the University of Idaho.

544 Applied Stochastic Processes 3 Prereq Stat 443 or Biostat 430. Poisson and Markov processes; queuing theory, auto-covariance, stationarity, power spectra; harmonic analysis; linear mean-squared predictions.

562 Mathematical Genetics 3 Prereq Genet/ new 301; Stat 443 or Biostat 412. Theoretical and statistical approaches to Mendelian and population genetics; theories and estimation of genetic parameters; testing genetic hypotheses.

571 Reliability Theory 3 Prereq Stat 443 or new Biostat 430. Statistical concepts; stochastic material strengths and lifetimes; strength vs safety analysis; reliability of coherent systems; maintenance models; complex systems. (a/sy)

University Interdisciplinary Courses

UNIV 100/101 College Majors and Career new 1-3 May be repeated for credit; cumulative maximum 6 hours. May be used to fulfill the independent study requirement for the Honors Program.

430 Foreign Study Practicum and Reports 2 new By interview only. Special assignments and reports related to foreign study programs.

Veterinary Anatomy

V An 350 Skeletal Preparation V 1-3 May be repeated for credit; cumulative maximum 3 hours. Technique of skeletal preparation.

Veterinary Clinical Medicine and Surgery


464 Small Animal Medicine II 5 Prereq VMS 463. Diagnosis and treatment of small animal diseases. Continuation of VMS 463.

471 Introduction to Surgery 1 Prereq new 2nd year in Vet Med. Wound healing and introduction to surgical instrumentation, techniques and organization.


489 Large Animal Preventive Medicine 3 new Prereq 3rd year in Vet Med. Veterin-
Vocational Technical Education

VTE

110 Foundations of Industrial Education and Technology 2 History, goals, methods, curriculum, contemporary programs, and professional organizations.

220 (372) Industrial Education Design 3 (3-0) Prereq M E 101; Ag M 201. Design fundamentals; techniques, materials, and tools employed in the fabrication of industrial products.

222 (121) Woodworking Technology I 3 (0-0) Prereq M E 101. Wood identification, design, and fabrication of wood products, basic finishing techniques and related materials.

300 (130) Electricity 3 (1-0) Electrical theory and construction practices relevant to contemporary technology and the needs of the teacher. Cooperative course taught at the University of Idaho.

350 (3-0) Electronics 3 (1-0) Prereq VTE 250. Advanced electronics concepts and device applications to electronic systems. Cooperative course taught at the University of Idaho.

Vocational Technical Education

Women Studies

W S

290 Women in the Workplace 2 Career and new life planning based on an understanding of the historical and contemporary situation of women in the workplace.

310 Women Artists in History 3 A historical study of women artists.

410 Racism and Sexism in Language 3 Same new as For L 410.

Zoology

Zool

205 Evolution 2 For non-biology majors. new Basic principles of Darwinian evolution. Credit not granted for both Zool 205 and 405. Not recommended for Life Sciences majors, except those in Biology Education Option.

328 Animal Population Dynamics 3 Prereq new Ag Bio S 104. History and concepts of natural resource management from a wildlife perspective.


420 Microanatomy 4 (2-2) Prereq Zool 320. New Microscopic analysis of selected cell types, tissue, and organ structure; organization, evolution, and function.


Chem. Nutritional requirements and interactions of wildlife populations. Credit granted for both Zool 432 and 332.


Instruct Practicum V 1-4 May be repeated for credit; cumulative maximum 6 hours. Academic training in laboratory teaching and tutoring.

Generation, Degeneration, Regeneration in the Nervous System 2 Plasticity and specificity of neural connections of invertebrates and vertebrates. Cooperative course taught at the University of Idaho.

Electron Microscope Laboratory 3(0-0) new Prereq 1 yr biology; 1 yr Org Chem; 1 yr Phys; Bio S 405 or c/. By interview only. Techniques of transmission and scanning electron microscopy, especially those applicable to biological materials.

Principles of Systematic Biology 3(2-3) Prereq Bio S 103, 104; 10 additional hrs Zool. Principles, methods, and literature of systematic biology; speciation mechanisms; concepts and problems of species of higher taxa; codes of nomenclature.

Radioactive Tracer Techniques 2(1-3) Use of radioisotopes in biological research.

Wildlife Nutrition 3(2-3) Graduate new level counterpart of Zool 432; additional requirements. Credit not granted for both Zool 432 and 332.

Waterfowl Management 3 Prereq Zool 455. Ecology and management of species using wetland habitats and current practices, problems, and procedures for managing such habitats. Cooperative course taught at the University of Idaho.

573 Cellular and Molecular Aspects of Development 3 Prereq Zool 325, BC/BP 364, or GenCB 450. Current biochemical and ultrastructural research in developmental biology. (a/y)

588 Advanced Topics in Wildlife V 1-3 May be repeated for credit; cumulative maximum 10 hours. Biological and management of wildlife species. Joint course taught with the University of Idaho.

589 Advanced Topics in Zoology 2 May be repeated for credit; cumulative maximum 9 hrs. Recent advances in zoology.

590 Advanced Topics in Zoology II 2 May be repeated for credit; cumulative maximum 9 hrs. Recent advances in zoology.

591 Advanced Topics in Zoology II 3 May be repeated for credit; cumulative maximum 9 hrs. Recent advances in zoology.

**DROPPED COURSES**

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<td>Ag E 492</td>
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<td>Environment 2</td>
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<td>Anth 390</td>
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<tr>
<td>As St 350</td>
<td>[H] Eastern Civilization: India, Buddhism 3</td>
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<td>BC/BP 417</td>
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<td>Identification of Plants 3(1-6) (Permanent SS</td>
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<td>Bio S 420</td>
<td>Vertebrate Zoology 4(2-6) (Permanent SS course)</td>
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<td>Bot 527</td>
<td>Radioactive Tracer Techniques 2(1-3) (Transfer</td>
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<td>Bot 540</td>
<td>Cytogenetics 3 Same as Genet 540.</td>
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<td>[2] Introduction to Computer Science 4(3-3)</td>
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<td>Integrating the Curriculum: Art and Language 4(3-3) (Permanent SS course)</td>
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<td>Entom 498</td>
<td>Insect Morphogenesis 4(3-3) (Idaho)</td>
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<td>Forestry Orientation 1</td>
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Dendrology 3(2-3)  
Silviculture Laboratory 1  
Recreation Programs 3 (dual listing)  
Land Use Seminar 1  
Advanced Range Ecology 3 (Idaho)  
Ecological Genetics 2(1-3)  
Teaching Advanced Biology Topics 2 (dual listing)  
Eukaryotic Gene Organization and Regulation 3  
Electron Microprobe 3(2-3)  
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The Spanish Empire in America 3  
Food Preservation Technology 3 (dual listing)  
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Trends in Food Service Systems Management 3  
Theories of Commercial Design 4(1-6)  
Preservation/Restoration of Interiors and Furnishings 3(2-3) (Permanent SS course)  
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Organization and Administration of Learning Resources Programs 3  
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[P] Technology Today 3  
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Directed Study V 1-6  
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Wind Ensemble 1  
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Fundamental Voice Techniques 1(0-3)  
Fundamental Woodwind Techniques 1(0-3)  
Percussion Techniques 1(0-5)  
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Seminar 1  
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Seminar on Analytic Philosophy 3 (conjoint listing)  
Seminar in Contemporary Ideas 3  
Seminar in Philosophy of Science 3 (conjoint listing)  
Seminar on Teaching of Philosophy 1  
Seminar in Theory of Knowledge 3 (conjoint listing)  
Seminar on Metaphysics 3 (Conjoint listing)  
Seminar on Social and Political Philosophy 3 (conjoint listing)  
Seminar on Ethical Theory 3 (conjoint listing)  
Master's Research, Thesis, and/or Examination (variable credit)  
PhD 702  
Master's Special Problems, Directed Study, and/or Examination (variable credit)

Physical Education Activity Courses

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PFP 195  
Tumbling and Trampoline 1(0-3)  
PFP 198  
Women's Gymnastic Apparatus 1(0-3)  
PFP 254  
Creative Rhythms for Young Children 2  
PFP 331  
Advanced Analysis of Performance in Physical Activity 1(0-3)  
PFP 352  
Advanced Analysis of Performance in Individual and Dual Sports 2(1-3)  
PFP 381  
Curriculum and Evaluation in Elementary School Physical Education 2  
PFP 383  
Motor Learning and Motor Development 2  
Phys 100  
Preparation for Physics 2  
Phys 371  
[PF] Revolutions in Physics 3  
Phys 353  
Advanced Topics in Statistical Mechanics and Thermodynamics 3 (dual listing)  
Phys 539  
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Phys 574  
Advanced Mathematical Physics 2  
PBP 321  
[B] Plant Diseases, Environment, and Human Welfare 3  
PBP 330  
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PBP 525  
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PBP 529  
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PBP 550  
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Pol S 415  
Government Policy and Black Americans 3 (dual listing)  
Pol S 550  
Seminar in British Politics 3  
Pol S 551  
Seminar in Western European Politics 3  
Pol S 560  
Comparative State Political Systems 3  
Pol S 570  
Seminar on Political Violence 3 (Idaho)  
Pol S 580  
Seminar in Administration and Contemporary Issues 3 (Idaho)  
Pol S 584  
Seminar in African Politics 3 (Idaho)  
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Psych 522  
Cognitive Behavior Therapy 3  
Psych 565  
Seminars in Problems of Alcoholism 3  
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RPA 388  
Social Recreation 2  
RPA 473  
Recreation and Park Facilities Management 3  
RPA 493  
Organization and Administration of Therapeutic Recreation 2  
RPA 488  
Young Agencies 2  
R P 568  
Advanced Projects in Planning and Design 5 (dual listing)  
Soc 430  
World Population: Issues and Debates 3  
Soc 453  
Social Theory of Work 3  
Soc 564  
Seminar in Problems of Alcoholism 3 (dual listing)  
Soc 565  
Seminar in Problems of Alcoholism 3 (dual listing)  
Spe 493  
Touring Theatre V 1-3  
Spe 545  
American Theatre and Drama I 3  
Spe 551  
Research in the Production of Period Plays 3 (Permanent SS course)  
U H 370  
Ancient Civilizations 3  
V Mic 539  
Pet Bird Diseases 2(1-3)  
V Pa 443  
Ecologic Perspectives in Veterinary Medicine 2(1-3)  
V Pa 529  
Neurochemistry 3 (dual listing)  
V Pa 530  
Neurochemical Techniques 1(0-3) (dual listing)
CERTIFICATION CRITERIA 
AND PROCEDURES

Business and Hotel Administration

I. HOURS REQUIREMENT
To be eligible to certify as a major in Business or Hotel and Restaurant Administration, a student must have earned at least 40 semester hours of credit on graded course work, at least 6 of which must be in business core courses.

Transfer students with less than 40 semester hours of transfer credit may use transfer credits to meet the 40 hour requirement, but must rely on work done at WSU to meet the certification standards below.

Transfer students with more than 40 semester hours transfer credit may certify on the basis of their cumulative g.p.a. on transfer credit, provided they request certification prior to receiving grades for work taken at WSU.

II. G.P.A. REQUIREMENT
All students must meet the minimum conditions listed below on work taken at WSU to be certified.

A. Cumulative g.p.a. as computed by the Registrar, or
B. The g.p.a. from at least 15 hours of the following business core courses: B law 210, Acctg 230 and 231, QMeth 215, Math 201 and 202, Econ 102 and 203, Mgt 301, Fin 325, Mktg 360.

The g.p.a. standards will be adjusted prior to the beginning of the fall semester each year to reflect available spaces and expected applications. These standards will be applicable to all students seeking certification during the ensuing academic year.

G.P.A. Standards for Academic Year 1982-83
1. Assured cumulative g.p.a. 2.8
2. Assured business core g.p.a. 2.9
3. Minimum cumulative g.p.a. 2.6
4. Minimum business core g.p.a. 2.6

Students will be automatically certified when they apply if either the cumulative g.p.a. or business g.p.a. is equal to or greater than the assured level and neither g.p.a. is below the minimum level.

III. RANKING POOL
If neither the cumulative g.p.a. nor business g.p.a. is equal to or above the assured level but both g.p.a.'s are above the minimum g.p.a. level, the student will be placed in a ranking pool computed on grades at the completion of the spring semester each year. Students may file for certification ranking before the end of the spring semester.

On or about July 15, the college will determine the minimum g.p.a. acceptable for certification in the ranking pool and will certify those students in the pool with a g.p.a. equal to or above that g.p.a.

A. Students who were ranked but not certified will be certified if they succeed in raising their business g.p.a. or their cumulative g.p.a. to the lowest g.p.a. which was the basis for certification, by the end of the ensuing fall semester.

B. Students who were ranked and still not eligible for certification by the end of the ensuing fall semester will not be certified and must reapply to be ranked a second time.

IV. ADDITIONAL CRITERIA
Students who do not meet the minimum g.p.a. may appeal for consideration of additional criteria such as:

A. Extended work experience, training, or skills (equivalent to more than two years full time employment) which indicate a career commitment. Summer and part time work will normally not be considered.

B. Academic problems due to inadequate preparation, obligations, or personal misfortune which are no longer likely to affect the student's performance.

C. Academic hardship due to delay in certification, if no alternative exists.

Petitions for consideration of additional criteria should be addressed to the Associate Dean of the College of Business and Economics. The petition should be accompanied by documentation from doctors, employers, instructors or other professionals when necessary to establish personal/academic experience or problems. The final decision on these petitions will be made at least once each semester by the Associate Dean and/or the Academic Standards and Certification Committee of the Departments of Business.

Recertification. Students who are decertified because their g.p.a. falls below 2.0 may apply for recertification when they raise their g.p.a. to above 2.0.

Economics

To be eligible to certify as a major in Economics a student must meet the same requirements as for business listed above except the economics core is based on g.p.a. from at least 9 hours of Econ 102, 201, 203, 301 and 320, Math 201 and 202, QMeth 215.