TO: MEMBERS OF THE UNIVERSITY OF IDAHO FACULTY

The items listed below, approved by the University Curriculum Committee, will be considered to have the necessary faculty approvals unless a petition requesting further consideration of specific items is signed by five faculty members and submitted to the chair of the Faculty Senate within 14 calendar days after the date of circulation. If no petition is received within 14 days, the entire report will be submitted to the president for approval and transmittal to the regents, if regents’ action is required. If a petition is received, the items in the report for which further consideration is requested will be referred to the Faculty Senate and the remainder of the report will move forward. On items referred to it, the council may: (1) affirm the action and report it to a meeting of the university faculty, (2) amend the action and report it to a meeting of the university faculty, or (3) rescind the action. Note: If a petition concerns courses or curricula in the College of Letters, Arts and Social Sciences or in the College of Agricultural and Life Sciences, and is signed by five faculty members of the respective college, those items will be returned to the college concerned for further consideration.

All Items below are considered effective Summer 2016 unless otherwise noted with the approved item.

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BIOLOGICAL SCIENCES

1. Discontinue the following subject prefixes

   MMBB – Microbiology, Molecular Biology, and Biochemistry

   NEUR – Neuroscience

2. Add the following courses

   Gene 207 Introduction to Biotechnology (3 cr)
   See PlSc 207.

   Gene 440 Advanced Laboratory Techniques (4 cr)
   See PlSc 440.

   Gene J488/J588 Genetic Engineering (3 cr)
   See PlSc J488/J588.

3. Change the following courses

   Biol 314 Ecology and Population Biology (4 cr)
   Nutrient cycling and energy flow, populations, population genetics, use and construction of phylogenies, communities and biodiversity. Population genetics, population ecology, species interactions, community ecology, biodiversity, and data analysis. Three lec and one 3-hr lab aper wk. (Spring only)
   Prereq: Biol 114 and Biol 115; Stat 251 or Stat 301; and Math 143 or Math 160 or Math 170.

   Biol J447/J547 Virology (3 cr)
   Same as MMBB J432/J532. A survey of virology, with special emphasis on the molecular basis of replication, host-pathogen interactions and diseases associated with animal viruses. Extra oral and/or written assignments required for grad credit. Recommended preparation: Biol 250. (Fall, alt/ys)
   Prereq: Biol 312380, and Biol 310 or Gene 314; or Permission
1. Add the following courses

**Fish 473 ECB Senior Presentation (1 cr)**
Same as For/NRS/REM/RMat/WLF 473. Reporting and presenting the senior project (thesis or internship); taken after or concurrently with 485 or 497. Serves as the senior capstone course for Ecology and Conservation Biology (ECB).

*Prereq: Instructor Permission*

**Fish 516 Animal Movement, Dispersal and Migration (3 cr)**
Key theories and approaches for studying animal movement and dispersal in aquatic, marine and terrestrial environments, with critical analysis of empirical examples. Students are expected to develop an independent research project.

**WLF 371 Physiological Ecology of Fish and Wildlife (3 cr)**
Study of how biotic and abiotic components of the environment influence animal physiology, and how the physiology of animals influences their ecology (e.g., behavior, distribution, etc.). Major topics include energetics, thermal ecology, nutritional ecology, reproductive physiology, osmoregulation, and endocrinology. (Spring only)

*Prereq: Biol 213*

**WLF 473 ECB Senior Presentation (1 cr)**
See Fish 473.

**WLF 506 External Speakers (1 cr)**
Students will attend seminars of fish and wildlife researchers and managers invited to present in our departmental seminar series. Students will read papers of external speakers, lead discussions of papers and assist with hosting speakers. Graded Pass/Fail.

2. Change the following courses

**Fish 422 Concepts in Aquaculture (3 cr)**
Concepts and methods of extensive and intensive aquaculture in warm water and cold water systems. Two field trips reqd (a 1-day and a 3-day field trip). Cooperative: open to WSU degree-seeking students. (Spring only)

*Prereq or Coreq: Fish 481*

**Fish 481 Ichthyology (4 cr)**
Anatomy, taxonomy, physiology, genetics and zoogeography of fishes. Three lectures and one 3-hr lab per week. (Spring only).

*Prereq: Biol 114 and Biol 115, and Biol 213 or instructor permission*

**Fish 498 (s) Internship (cr arr)**
The internship serves to provide hands on experience for students interested in fisheries and aquaculture.

*Prereq: Instructor permission*

**WLF 105 Hunter Education (21 cr)**
The course provides an overview of hunter ethics; wildlife management, conservation, and survival; and wildlife laws and law enforcement. This course also fulfills the state requirement for hunter education for purchase of a hunting license. Course includes in-class instruction and one outdoor field day. Graded Pass/Fail.

**WLF 314 Wildlife Ecology IEcology of Terrestrial Vertebrates (3 cr)**
Short title: Terrestrial Vertebrate Ecology
Ecology and natural history of birds, mammals, reptiles, and amphibians. (Fall only)

**Prereq:** For 221, REM 221, or Biol 314

<table>
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<tr>
<th>WLF 315 Wildlife Ecology I Techniques Laboratory (12 cr)</th>
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<tr>
<td>Techniques associated with wildlife research and local habitats and areas where wildlife species are present. Three hours of lab a week. One weekend field trip required. Two additional animal trapping sessions also required. (Fall only)</td>
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<tr>
<td><strong>Prereq or Coreq:</strong> WLF 314</td>
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<tr>
<th>WLF 448 Population Ecology (4 cr)</th>
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<tr>
<td>Dynamics of animal populations resulting from balance between birth, death, and movement processes; quantitative methods for measuring distribution, abundance, survival and population growth; competition, predation, and self-regulation; viability and management of fish and wildlife populations. Three lec and one lab a wk. (Fall only)</td>
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<tr>
<td><strong>Prereq:</strong> Stat 251; and Fish 316, WLF 316, or course in vertebrate ecology Math 160 or 170.</td>
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<tr>
<th>WLF 482 Ornithology (4 cr)</th>
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<tr>
<td>Evolution, systematics, distribution, identification, and biology of birds, including current conservation efforts. Requires two days of field trips. (Spring only)</td>
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<td><strong>Prereq:</strong> Biol 243114 and 115</td>
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<tr>
<th>WLF 540 Conservation Genetics (1-3 cr, max 3)</th>
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<tr>
<td>Basic principles of population genetics and phylogenetics and their applications to the field of conservation and natural resource management. Taught in three 1-credit modules, and students can register for 1-3 credits. Module 1 includes introduction to conservation genetics and phylogenetics, module 2 includes population genetic theory and methods, and module 3 includes applications in conservation genetics and genomics. <strong>Cooperative:</strong> open to WSU degree-seeking students. (Spring, Alt/yrs)</td>
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3. Drop the following courses

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<tr>
<th>Fish 316 Principles of Population Dynamics (2 cr)</th>
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<tr>
<td>Basic principles of population ecology of animals. Taught first half of semester. (Spring only)</td>
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<tr>
<td><strong>Prereq:</strong> Fish 314 and Fish 315 with a grade of ‘C’ or better and For 221, REM 221, or Biol 314; or Permission</td>
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<tr>
<th>WLF 316 Wildlife Ecology II (4 cr)</th>
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<tr>
<td>Application of principles of ecology to conservation and management of wildlife in natural and altered habitats. Three lec and one lab a wk; three days of field trips. (Spring only)</td>
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<tr>
<td><strong>Prereq:</strong> WLF 314 and 315 with a grade of ‘C’ or better; or Permission</td>
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<tr>
<th>WLF 495 (s) Wildlife Seminar (1-2 cr)</th>
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<tr>
<td>Discuss integrating biological, social, political, economic, and philosophic aspects of wildlife problems. (Fall only)</td>
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<td><strong>Prereq:</strong> Senior standing</td>
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4. Change the curricular requirements of Fishery Resources (B.S.Fish.Res.)

Students pursuing a B.S. degree in fishery resources (management or aquaculture emphasis) must have received a grade of C or better in each of the following four indicator courses to register for fish- and wildlife-prefixe upper-division courses and to graduate with a B.S.Fish.Res.: Biol 114 and Biol 213, Stat 251, and For 221.

To graduate, students must achieve a grade of C or better in Fish 481, and each fish- and wildlife-prefixe upper-division course listed in the requirements for the B.S. degree in fishery resources.
Required course work includes the university requirements (see regulation J-3) and:

First and Second Years

- Biol 114 Organisms & Environments (4 cr)
- Biol 115 Cells and the Evolution of Life (4 cr)
- Biol 213 Principles of biological Structure and Function (4 cr)
- Chem 101 Introduction to Chemistry I (4 cr)
- Comm 101 Fundamentals of Public Speaking (2 cr)
- Econ 202 Principles of Microeconomics (3 cr)
- Fish 102 The Fish and Wildlife Professions (1 cr)
- Fish 202 Fish & Wildlife Applications II (1 cr)
- For 235 or CSS 235 Society and Natural Resources (3 cr)
- For 375 Introduction to Spatial Analysis for Natural Resource Management (3 cr)
- Geol 101 Physical Geology (3 cr)
- Geol 101L Physical Geology Lab (1 cr)
- Math 160 Survey of Calculus (4 cr)
- NR 101 Exploring Natural Resources (1 cr)
- Stat 251 Statistical Methods (3 cr)
- WLF 201 Fish and Wildlife Applications I (1 cr)

One of the following (4 cr):
- Chem 101 Introduction to Chemistry I (4 cr)
- Chem 111 Principles of Chemistry I (4 cr)

One of the following (3 cr):
- Chem 275 Carbon Compounds (3 cr)
- Chem 277 Organic Chemistry (3 cr)

One of the following (3 cr):
- For 221 Ecology (3 cr)
- REM 221 Ecology (3 cr)

One of the following (4 cr):
- Geol 101 Geol 101L Physical Geology and Lab (4 cr)
- Soil 205 Soil 206 The Soil Ecosystem and Lab (4 cr)

One of the following (4 cr):
- Math 160 Survey of Calculus (4 cr)
- Math 170 Analytic Geometry and Calculus I (4 cr)

One of the following (4 cr):
- Geog 100 Geog 100L Physical Geography and Lab (4 cr)
- Phys 100, Phys 100L Fundamentals of Physics and Lab (4 cr)
- Phys 111, Phys 111L General Physic I and Lab (4 cr)

Third and Fourth Years

- Biol 250, Biol 255 General Microbiology and Lab (5 cr)
- CSS 383 Natural Resource and Ecosystem Service Economics (3 cr)
- Fish 314 Fish Ecology (3 cr)
- Fish 315 Fish Ecology Lab (1 cr)
- Fish 316 Principles of Population Dynamics (2 cr)
- Fish 415 Limnology (4 cr)
- Fish 418 Fisheries Management (4 cr)
- Fish 481 Ichthyology (4 cr)
Fish 495  Seminar (1 cr)
For 375  Introduction to Spatial Analysis for Natural Resource Management (3 cr)
WLF 371 Physiological Ecology of Fish and Wildlife (3 cr)
WLF 448 Fish and Wildlife Population Ecology (4 cr)

Approved work experience in major field required

One of the following (3 cr):
AVS 371 Anatomy and Physiology (3 cr)
Biol 423 Comparative Vertebrate Physiology (3 cr)

One of the following (2 cr):
Fish 398 Renewable Natural Resources Internship (cr arr)
WLF 398 Renewable Natural Resources Internship (cr arr)

One of the following (3 cr):
Engl 313 Business Writing (3 cr)
Engl 317 Technical Writing (3 cr)

One of the following (3-4 cr):
Fish 422 Concepts in Aquaculture (3 cr)
Fish 424 Fish Health Management (4 cr)

One of the following (3-4 cr):
Biol 310_Biol 315 Genetics and Lab (43 cr)
Gene 314 General Genetics (3 cr)

Courses to total 120 credits for this degree

5. Change the curricular requirements of Wildlife Resources (B.S.Wildl.Res.)

Students pursuing a B.S. in wildlife resources must have received a grade of C or better in each of the following four indicator courses to register in fish- and wildlife-prefixed upper-division courses and to graduate with a B.S. in wildlife resources: Biol 114 and Biol 213, Stat 251, and For 221.

To graduate, a student must receive a grade of C or better in each fish- and wildlife-prefixed upper-division course listed in the requirements for the B.S. in wildlife resources.

Required course work includes the university requirements (see regulation J-3) and:

First and Second Years

Biol 114 Organisms & Environments (4 cr)
Biol 115 Cells and the Evolution of Life (4 cr)
Biol 213 Principles of Biological Structure and Function (4 cr)
Chem 101 Introduction to Chemistry I (4 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Econ 202 Principles of Microeconomics (3 cr)
Fish 202 Fish & Wildlife Applications II (1 cr)
For 235 or CSS 235 Society and Natural Resources (3 cr)
NR 101 Exploring Natural Resources (1 cr)
Stat 251 Statistical Methods (3 cr)
WLF 102 The Fish and Wildlife Professions (1 cr)
WLF 201 Fish and Wildlife Applications I (1 cr)

One of the following (3 cr):
Chem 275  Carbon Compounds (3 cr)
Chem 277  Organic Chemistry I (3 cr)

One of the following (3 cr):
For 221  Ecology (3 cr)
REM 221  Ecology (3 cr)

One of the following (3-4 cr):
For 320  Dendrology (4 cr)
REM 341  Systematic Botany (3 cr)

One of the following (4 cr):
Geol 101, Geol 101L  Physical Geology and Lab (4 cr)
Soil 205, Soil 206  The Soil Ecosystem and Lab (4 cr)
Phys 100, Phys 100L  Fundamentals of Physics and Lab (4 cr)
Phys 111, Phys 111L  General Physics I and Lab (4 cr)

One of the following (4 cr):
Math 160  Survey of Calculus (4 cr)
Math 170  Analytic Geometry and Calculus I (4 cr)

Third and Fourth Years

AVS 371  Anatomy and Physiology (3 cr)
CSS 383  Natural Resource and Ecosystem Service Economics (3 cr)
For 375  Introduction to Spatial Analysis for Natural Resource Management (3 cr)
REM 411  Ecological Monitoring and Analysis (2 cr)
WLF 314, WLF 315  Wildlife Ecology I and Lab (4 cr)
WLF 314  Ecology of Terrestrial Vertebrates (3 cr)
WLF 315  Wildlife Techniques Laboratory (2 cr)
WLF 316  Wildlife Ecology II (4 cr)
WLF 371  Physiological Ecology of Fish and Wildlife (3 cr)
WLF 440  Conservation Biology (3 cr)
WLF 448  Fish and Wildlife Population Ecology (4 cr)
WLF 492  Wildlife Management (4 cr)
WLF 495  Wildlife Seminar (1 cr)

One of the following (3-4 cr):
Biol 310, Biol 315  Genetics and Lab (43 cr)
Gene 314  General Genetics (3 cr)

One of the following (4 cr):
Phys 100, Phys 100L  Fundamentals of Physics and Lab (4 cr)
Phys 111, Phys 111L  General Physics I and Lab (4 cr)

One of the following (3 cr):
Comm 431  Applied Business and Professional Communication (3 cr)
Engl 208  Personal and Exploratory Writing (3 cr)
Engl 317  Technical Writing (3 cr)

One of the following (2-3 cr):
Comm 410  Conflict Management (3 cr)
CSS 387  Environmental Communication Skills (3 cr)
CSS 486  Public Involvement in Natural Resource Management (3 cr)
For 484  Forest Policy and Administration (2 cr)
WLF 205  Wildlife Law Enforcement (2 cr)
One of the following (2 cr):
Fish 398 Renewable Natural Resources Internship (cr arr)
WLF 398 Renewable Natural Resources Internship (cr arr)

Restricted electives, choose two courses from the following (must receive a grade of C or better):
Biol 483 Mammalogy (3 cr)
Biol 489 Herpetology (4 cr)
Fish 481 Ichthyology (4 cr)
WLF 482 Ornithology (4 cr)

Approved work experience in major field required

Courses to total 120 credits for this degree

6. Change the curricular requirements of the Aquaculture Minor

Biol 250, Biol 255 General Microbiology and Lab (5 cr)
Fish 422 Concepts in Aquaculture (3 cr)
Fish 424 Fish Health Management (4 cr)
Fish 481 Ichthyology (4 cr)

Three of the following courses:
AgEc 278 Farm and Agribusiness Management (4 cr)
Fish 398 Renewable Natural Resources Internship (cr arr)
ASM 107 Beginning Welding (2 cr)
AVS 305 Animal Nutrition (3 cr)
Bus 321 Marketing (3 cr)
Bus 414 Entrepreneurship (3 cr)
Fish 498 (s) Internship (cr arr)

Courses to total 18 credits for this minor

7. Change the curricular requirements of the Wildlife Resources Minor

WLF 314, WLF 315 Wildlife Ecology I and Lab (4 cr)
WLF 314 Ecology of Terrestrial Vertebrates (3 cr)
WLF 315 Wildlife Techniques Laboratory (2 cr)
WLF 316 Wildlife Ecology II (4 cr)

One of the following (3-4 cr):
For 221 Ecology (3 cr)
REM 221 Ecology (3 cr)
Biol 314 Ecology and Population Biology (4 cr)

Any combination of the courses below:
Biol 483 Mammalogy (3 cr)
Biol 489 Herpetology (4 cr)
WLF 371 Physiological Ecology of Fish and Wildlife (3 cr)
WLF 440 Conservation Biology (3 cr)
WLF 448 Fish and Wildlife Population Ecology (4 cr)
WLF 482 Ornithology (4 cr)
WLF 492 Wildlife Management (4 cr)

Courses to total 18 credits for this minor

FOREST, RANGELAND, AND FIRE SCIENCES
1. Add the following courses

   **For 473 ECB Senior Presentation (1 cr)**
   See Fish 473.

   **REM 253 Wildland Plant Identification Field Studies (1 cr)**
   Short title: Plant Id Field Studies
   Develop skills to identify rangeland plants in the field. Focus is on identification of grasses, forbs, and shrubs. Exploration will include ecosystem roles of wildland plants and developing ecological site descriptions. This course includes a 6-day field trip at the beginning of the summer semester. Required for REM majors.
   **Prereq:** REM 252

   **REM 473 ECB Senior Presentation (1 cr)**
   See Fish 473.

   **RMat 473 ECB Senior Presentation (1 cr)**
   See Fish 473.

2. Change the following courses

   **REM 252 Wildland Plant Identification Field Studies (32 cr)**
   Develop skills to identify, and classify, and collect major rangeland plants in the field. Focus is on identification of grasses, forbs, and shrubs. Discussions will also encompass the ecological roles of wildland plants and the ecosystem classification. This course includes a 7- to 91-day field trip. Required for REM majors. (Spring only)

   **RMat 100 Introduction to Renewable Materials (2 cr)**
   Overview of renewable building materials and bio-energy industries. Discovery laboratory in the use of renewable and recycled waste stream materials to create useful products. One lec and one three-hour lab a wk. (FallSpring only)

3. Drop the following course

   **RMat 365 Wood Building Technology (3 cr)**
   Basic structural design including elementary statics and principles and technology of wood structural design. Role of sustainably-produced wood components in green building design. Recommended Preparation: Phys 100, Phys 111. (Fall only)

GEOGRAPHY

1. Add the following course

   **Geog 453 Water and Energy Systems (3 cr)**
   See EnvS J483/J583.

2. Change the following courses

   **Geog J407/J507 Spatial Analysis Statistics and Modeling (3 cr)**
   Short Title: SPATIAL STATS AND MODELING
   Point Pattern Analysis, Nearest Neighbor, K-Functions, Quadrat Analysis, Spatial Autocorrelation (Moran’s I, Geary’s ratio, General G-statistics), Order Neighbor Analysis, Spatial Regression (creating prediction models, improving accuracy, validating and working with spatial weighted lags), Spatial Sampling Techniques/Methods, Spatial Dispersion, Spatial Diffusion, Gravity Models. Additional assignments and exams required for graduate credit. (Spring only)Introduces the basic theories and methods of spatial analysis used for statistical modeling and problem solving in human and physical
geography. The special nature of spatial data (point, continuous, and lattice) in the social and physical sciences is emphasized. Topics include point pattern analysis, spatial autocorrelation analysis, spatial multivariate regression, local indicators of spatial association, and geographically weighted regression. Extra oral and/or written assignments required for grad credit.

**Prereq:** Geog 385 and Stat 431 or permission

**Geog 410 Biogeography (3 cr)**
Geographic distributions of plant and animal species, and causes of patterns, including climate, geology, speciation, extinction, and migration. Additional assignments and exam are required for 3 credits.

**Prereq:** Geog 100/Geog 100L or For/REM 221 or Permission

**Geog 475 Intermediate GIS (3 cr)**
Course covers in-depth geographic information systems models and applications. Topics include network analysis, watersheds analysis, spatial interpolation, terrain mapping and analysis, 3D visualization, and GIS modeling. Students develop spatial analysis and modeling skills to solve real-world problems.

**Prereq:** Geog 385 and Stat 251

**Coreq:** Stat 251

**Geog 507 Spatial Analysis Statistics and Modeling (3 cr)**
See Geog J407/J507.

3. Reactivate and change the following course

**Geog 542 Spatial Statistics (3 cr)**
Same as Stat 546. The course focuses on the basic theory and methods of spatial statistics including spatial dependence assessment and modeling. The course will cover basic spatial data analysis, point pattern analysis, spatial autocorrelation methods as well as the analysis of lattice structures, Geographically weighted regression, spatial auto regression and the analysis of geographically continuous data using kriging methods will also be covered. (Alt/yr) The course extends the range of spatial analysis from GEOG 507. Topics include spatial covariance structures, methods of spatial model estimation, (e.g., iterated LS, GLS, MLE, penalized estimation), spatial interpolation and surface estimation, geostatistics/kriging and gravity model estimation and local parametric estimation procedures. Categorical spatial data analysis, Poisson and logistic regression, mixed models, contingency tables, models of discrete temporal and landscape change and graph-theoretic analogues, log-linear models. Additional topics, time permitting, introduction to hierarchical modeling and Bayesian spatial techniques and MCMC estimation, Markov random fields, stochastic space-time analysis and diffusion, time series of stationary series and vector autoregression with Granger causality, space-time covariance heterogeneity issues. Recommended: An additional course in multivariate statistics, probability theory or mathematical statistics.

**Prereq:** Geog 475, Math 170, Math 330, and Geog 507, Stat 431 or permission

**GEOLOGICAL SCIENCES**

1. Change the following courses

**Geol 324 Principles of Stratigraphy and Sedimentation (4 cr)**
Description and identification of sedimentary rocks; organization and correlation of layered rocks in all scales, including factors controlling their distribution; cycles in sedimentation and stratigraphy; sequence stratigraphy and basin dynamics. Interrelationship of sedimentation and stratigraphy and processes and factors influencing genesis of sedimentary rocks. Topics include weathering, fluid flows, sediment mechanics, depositional environments, stratigraphic logging and field data collection, sedimentary lithofacies, provenance, and application of principles of interpretation of stratigraphic
Geol J407/J507 Basin Analysis (3 cr)
Formation mechanisms and characteristics of sedimentary basins. Modern concepts of tectonics and sedimentary basin analysis, including geologic application of provenance, thermal and subsidence histories, and sequence stratigraphy. Lithofacies distributions and structural styles in a variety of basin types with specific examples from around the world, and methods for studying them. For 500-level credit an additional research project is required. One 2-day field trip. Cooperative: open to WSU degree-seeking students. (Spring only)
Prereq: Geol 102/102L and Math 143 with a grade of 'C' or better

Geol 548 Tectonics (3 cr)
Synthesis of observations from diverse disciplines of geology leading to the development of modern plate tectonic theory. Applications of plate tectonic principles to fundamental problems of continental and marine geology. Nature and origin of the Earth's major tectonic features. Two lec and 2 hrs of lab a wk; one or two 1- to 25-day field trips. Cooperative: open to WSU degree-seeking students.
Prereq: Geol 324 and Math 143 with a grade of 'C' or better

Hydr J412/J512 Environmental Hydrogeology (3 cr)
Methods of hydrogeologic site characterization for the delineation of environmental problems such as contaminated ground water plumes, and ground water dewatering for landslide remediation. For grad credit, students are required to complete an additional independent research paper/project.
Prereq: Geol 345 or Permission

2. Reactivate and change the following courses

Geol J464/J564 The Geochemistry of Natural Waters (3 cr)
Geol 564 same as Hydr 564. Basic principles of aqueous geochemistry applied to natural waters (groundwaters, lake and river waters, seawater), presented at an intermediate level; carbonate equilibria and alkalinity, solubility of minerals, sorption processes and surface reactions, redox reactions and Eh-pH diagrams, organic geochemistry, etc. For graduate credit, students are required to complete an additional independent research paper, prepare two in-depth term papers and demonstrate through exam work and papers a more in-depth understanding of the material. One compressed video and one web-based lecture a wk. Suggested Recommended preparation: Geol 423.
Prereq: Chem 111-112 and Math 143 with a grade of 'C' or better

Geol 564 The Geochemistry of Natural Waters (3 cr)
See Geol J464/J564.

JOURNALISM AND MASS MEDIA

1. Add the following courses

JAMM 122 Multimedia Storytelling (1 cr)
Basic principles of photographic and video/audio storytelling techniques emphasizing practical application for mass media. Students in JAMM 121 must also register for JAMM 122 the same semester.
Prereq: Engl 102 with a grade of 'C' or better and JAMM 100 with a grade of 'C' or better

JAMM 352 Event Planning and Management (2 cr)
Examination of types and structures of organizations that produce events, with an emphasis on the management of events, including funding, staffing and promotion. Students complete an original management plan for execution.
Prereq: Permission

JAMM 365 Social Media (3 cr)
History, theory, technology, audience impact and strategic uses of social media for advertising, marketing, public relations and journalism purposes. Students critically examine social media uses and employ current technologies to complete hands-on assignments and develop client-based social media strategies.
Prereq: JAMM 100 with a grade of ‘C’ or better and JAMM 121 with a grade of ‘C’ or better and JAMM 122 with a ‘C’ or better

JAMM 418 Teaching High School Journalism (3 cr)
Principles and best practices for teaching high school journalism. Covers evolution of high school journalism, the coaching method, program management, ethics, legal issues and cultural diversity.
Prereq: Permission

2. Change the following courses

JAMM 121 Media Writing (3 cr)
Basic principles of writing for print, broadcast and online media; skills in identifying and evaluating credible information. Two 2-hr lec-labs a wk. Recommended Preparation: Ability to type.
Prereq: Engl 102 with a ‘C’ or better; JAMM 100 with a ‘C’ or better
Coreq: JAMM 122

JAMM 322 Broadcast News (3 cr)
News reporting for radio, television and the Internet, emphasizing writing, editing, producing, and on-air performance skills; analysis of broadcast news practices. Recommended preparation: JAMM 275.
Prereq: JAMM 100 with a grade of ‘C’ or better and JAMM 121 with a grade of ‘C’ or better; and JAMM 225 or Permission
Prereq: JAMM 100 with a grade of ‘C’ or better and JAMM 121 with a grade of ‘C’ or better and JAMM 122 with a grade of ‘C’ or better; and JAMM 225 or JAMM 275; or Permission

JAMM 426 Narrative Journalism (3 cr)
Tradition and conceptual foundations of narrative journalism, with emphasis on structure, storytelling, style and narrative voice. Students will be expected to write or produce several enterprise stories suitable for publication or broadcast. An examination of the roots and development of American narrative journalism, with an emphasis on contemporary examples and their location in a digital world. Includes critical analysis of narrative structure, sourcing, audio/visual storytelling techniques and audience reception.
Prereq: JAMM 100 with a grade of ‘C’ or better and JAMM 121 with a grade of ‘C’ or better or better and JAMM 122 with a grade of ‘C’ or better and Junior standing or above and JAMM 225 or Permission

3. Make the following curricular changes to the B.A. and B.S. Journalism and Mass Media: Advertising, Broadcast and Digital Media, Journalism, and Public Relations Majors:

A minimum cumulative university grade-point average of 2.50 is required of students in order to graduate with a degree from the School of Journalism and Mass Media.

A student who graduates with a major in the School of Journalism and Mass Media must complete a minimum of 120 credits of which a maximum of 12 credits can come from experiential courses (Practicum in Tutoring -- JAMM 497, Internship -- JAMM 498, Directed Study -- JAMM 499). Students can receive no more than 6 credit hours for internship (JAMM 498) experience;
students can repeat JAMM 498 one time. Students must obtain approval from the School of
Journalism and Mass Media to apply internship credit toward a degree from the school.

Majors cannot apply more than 4548 hours of courses in Journalism and Mass Media toward the
120-credit degree requirement and are required to take no fewer than 60 hours in the liberal arts
and sciences. Majors may count no more than 8 hours of courses in Physical Education activity
courses (PEB 106, PEB 107 and PEB 108) toward the 120 credits required for the degree.

Candidates for the B.S. degree are required to complete a second major, an academic minor or
area of emphasis of at least 18 credits outside the School of Journalism and Mass Media. The
emphasis area must be approved by the student’s academic advisor.

JAMM 100, and JAMM 121 and JAMM 122 must be completed with a grade of C or better before
a major may enroll in any other Journalism and Mass Media courses. All students must complete
a minimum of 58 credits before enrolling in any upper-division course (numbered 300 or above)
offered by the school.

No more than 18 credits of journalism and mass media courses from other institutions may be
applied to a degree from the School of Journalism and Mass Media.

A student may not double major in the School of Journalism and Mass Media.

Courses required in all majors in the School of Journalism and Mass Media:

Comm 101      Fundamentals of Public Speaking (2 cr)
JAMM 100      Media and Society (3 cr)
JAMM 121      Media Writing (3 cr)
JAMM 122      Multimedia Storytelling (1 cr)
JAMM 341      Mass Media Ethics (3 cr)
JAMM 448      Law of Mass Media (3 cr)

Two of the following courses:
JAMM 339      Crime and the Media (3 cr)
JAMM 340      Cultural Diversity and the Media (3 cr)
JAMM 378      American Television Genres (3 cr)
JAMM 379      Hollywood Portrayals of Journalists (3 cr)
JAMM 426      Narrative Journalism (3 cr)
JAMM 440      Critical Issues in Mass Media (3 cr)
JAMM 443      Media Management and Economics (3 cr)
JAMM 444      Mass Media and Public Opinion (3 cr)
JAMM 445      History of Mass Media (3 cr)
JAMM 465      Political Advertising (3 cr)
JAMM 477      Documentary Film (3 cr)
JAMM 490      Global Media (3 cr)

Six credits of electives in Journalism and Mass Media (three of which must be upper division
credits)

Students in the School are required to complete at least 15 credit hours within one of the four
majors: Advertising; Broadcasting and Digital Media; Journalism; and or Public Relations.

4. Make the following curricular changes to the Journalism Major (B.A. and B.S.)

Required course work includes the university requirements (see regulation J-3), the School of
Journalism and Mass Media core, and the following:
JAMM 225      Reporting I (3 cr)
One of the following (3 cr):  
JAMM 322 Broadcast News (3 cr)  
JAMM 327 Reporting II (3 cr)

Nine credits from this list:  
JAMM 322 Broadcast News (3 cr)  
JAMM 324 News Editing and Production (3 cr)  
JAMM 325 Publications Editing (3 cr)  
**JAMM 327** Reporting II (3 cr)  
**JAMM 328** Science Writing (3 cr)  
JAMM 422 Advanced Broadcast News (3 cr)  
JAMM 425 Feature Article Writing (3 cr)  
**JAMM 426** Narrative Journalism (3 cr)  
JAMM 428 Environmental Journalism (3 cr)

Courses to total 120 credits for this degree

(Journalism majors are encouraged to pursue their studies across media, including print, broadcast and online journalism.)

**LAW**

1. Add the following courses

**Law 856 Legal Writing and Research for LL.M. Students (3 cr)**  
Short course: AMERICAN LEGAL WRITING & RES.  
Basic principles of American legal writing for foreign-trained lawyers. Topics covered include the American court system, common law, case briefing, legal analysis, and fundamentals of legal research. Students complete multiple writing and research assignments of increasing complexity geared to exercise their analytical and problem solving abilities.  
**Prereq:** Registered as L.L.M. student

**Law 857 Introduction to American Law and Legal Education (3 cr)**  
Short course: INTRODUCTION TO AMERICAN LAW  
Examination of the American legal system for foreign-trained lawyers. Topics, related to both statutory and common law, include fundamental legal concepts, key doctrinal areas of law, the American legal education system, how laws are made and function, and how law evolves over time.  
**Prereq:** Registered as L.L.M. student

1. Change the following courses

**Law 850 Freedom of Speech and the Press First Amendment Seminar (3 cr)**  
Exploration of the First Amendment protections for freedom of speech and press by examining First Amendment jurisprudence regarding the history, philosophy, and scope of an individual or group’s right to public and private speech or other types of expressive communication. Amendment’s Speech, Press, Association, Establishment, and Free Exercise Clauses, and the interrelatedness between free expression and religious freedoms. The course investigates analytical problems in First Amendment jurisprudence including philosophical foundations of free expression, free association, free exercise of religion, and the prohibition against government establishment of religion.  
**Prereq:** Law 816 and Law 905

**Law 918 Cyberlaw Internet Law (2-3 cr)**
Introduction to the legal and policy challenges presented by commerce and communication on the Internet. Topics include Internet governance, sovereignty and jurisdiction, free speech, privacy and surveillance, and the protection of intellectual property. Two-credit course covers fewer areas of study.

**Law 957 Mock Trial (2 cr)**
Participation as an attorney on a mock trial team in regional or national competition; the faculty supervisor of each competition is the final arbiter of the credits awarded within the guidelines.
Prereq: Law 954 or Law 958 or permission

**Law 995 General Practice/Domestic Violence & Sexual Assault Main Street Law Clinic (1-3 cr, max 6)**
Representation of clients in civil proceedings involving victims of domestic, sexual assault, dating violence or stalking. Student interns also represent clients in general practice matters including misdemeanor defense, family law, consumer protection, landlord-tenant disputes, probate and civil rights. Recommended Preparation: Law 953. Representing clients in proceedings primarily involving family law issues including divorce, custody, termination of parental rights, adoption, and contempt proceedings. Clinic students also advocate for victims in domestic violence protection order hearings, defend client in criminal misdemeanor cases, and represent clients in consumer protection matters, landlord-tenant disputes, and probate actions.
Prereq: Law 950, Law 962, and Law 971; and permission; and qualification for limited license as legal intern in Idaho
Coreq: Law 958

2. Make the following curricular changes to the **Juris Doctor Degree**

Required course work includes the College of Law requirements and the following:

- Law 805 Civil Procedure and Introduction to Law (3)
- Law 806 Civil Procedure II (3)
- Law 807 Property (4)
- Law 809 Torts (4)
- Law 812 Criminal Law (3)
- Law 813 Contracts (4)
- Law 815 Legal Research and Writing (0 or 5 cr, max 5)
- Law 816 Constitutional Law I (4)
- Law 820 Statutory Reading and Interpretation (3)
- Law 905 Constitutional Law II (3)
- Law 907 Administrative Law (3)
- Law 919 Business Associations (4)
- Law 950 Evidence (3)
- Law 962 Professional Responsibility (3)

  Two credits chosen from the following (2 cr):
  - Law 912 Civil Mediation (2 cr)
  - Law 913 Family Mediation (2 cr)
  - Law 914 Dispute Resolution (1 cr, max 4)
  - Law 917 Negotiation and Appropriate Dispute Resolution (3 cr)
  - Law 954 Trial Skills (3 cr)
Six credits chosen from the following experiential learning courses:

- Law 855 Water Law Practicum (2–3)
- Law 917 Negotiation and Appropriate Dispute Resolution (3)
- Law 932 Estate Planning (3)
- Law 958 Trial Advocacy (2)
- Law 971 Lawyering Process Seminar (2)
- Law 974 Legal Aid Clinic (1–3, max 6)
- Law 975 Classroom Credit Public Service Externship (1–5 cr, max 10)
- Law 978 Small Business Legal Clinic (1–3, max 6)
- Law 986 Judicial Clerkship Seminar (1–2 cr)
- Law 991 Skills Practicum (cr arr)
- Law 993 Appellate Clinic (1–3 cr, max 6)
- Law 994 Economic Development Clinic (1–3 cr, max 6)
- Law 995 Main Street Law Clinic (1–3, max 6)
- Law 996 Immigration Law Clinic (1–3, max 6)
- Law 997 Mediation Clinic (1–3, max 6)
- Law 998 Tax Clinic (2–3, max 6)

Plus the following:
One Upper-Division Writing Course
40 50 Hours of uncompensated law related pro bono service

Courses to total 90 credits for this degree

3. Make the following curricular changes to the Juris Doctor Degree: Business Law and Entrepreneurship Emphasis:
Students pursuing this emphasis must earn a minimum grade of ‘C’ in each course taken to satisfy Business Law & Entrepreneurship emphasis requirements, plus a cumulative 2.50 grade point average over all courses used to satisfy Business Law & Entrepreneurship emphasis requirements.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law 919</td>
<td>Business Associations</td>
<td>4</td>
</tr>
<tr>
<td>Law 925</td>
<td>Property Security</td>
<td>3</td>
</tr>
<tr>
<td>Law 930</td>
<td>Taxation</td>
<td>3</td>
</tr>
</tbody>
</table>

One **skills** class chosen from the following:
- Law 912   Civil Mediation (2)
- Law 917   Negotiation and Appropriate Dispute Resolution (3)
- Law 932   Estate Planning (3)
- Law 976   Semester in Practice (1–12)
- Law 978   Small Business Legal Clinic (1–3)
- Law 994   Economic Development Clinic (1–3)
- Law 998   Tax Clinic (2–3)

One **paper** class chosen from the following:
- Law 981   Critical Legal Studies Journal (1–4)
- Law 982   Law Review (1–4)
- Law 983   Directed Study (1–2)

One of the following groups of courses:

**Group A**
- Law 923   Negotiable Instruments, Bank Collections and Deposits, and Other Payment Systems (3)
- Law 924   Sales (3)

Six credits chosen from the following (6 cr):
- Law 854   Corporate Taxation (2–3)
- Law 907   Administrative Law (3)
- Law 911   Principles of Suretyship (2)
- Law 926   Bankruptcy (3)
- Law 927   Partnership and LLC Taxation (2–3)
- Law 984   Real Estate Transactions (2–3)
- Law 990   Consumer Law (3)

**Group B**
- Law 851   Advanced Torts (2–3)
- Law 854   Corporate Taxation (2–3)

Twelve credits chosen from the following (12 cr):
- Law 903   Introduction to Intellectual Property (3)
- Law 907   Administrative Law (3)
- Law 908   Workplace Law (4)
- Law 910   Antitrust (3)
- Law 920   Securities Regulation (3)
- Law 921   Accounting for Lawyers (2)
- Law 922   Trademarks and Trade Dress (2)
- Law 924   Sales (3)
- Law 927   Partnership and LLC Taxation (2–3)
- Law 984   Real Estate Transactions (2–3)
- Law 992   White Collar Crime (3)

**Group C**
- Law 992   White Collar Crime (3)
Law 903     Introduction to Intellectual Property (3)

Two classes chosen from the following:
Law 922     Trademarks and Trade Dress (2)
Law 931     Patents (2)
Law 980     Copyrights (2–3)

Five credits chosen from the following (5 cr):
Law 907     Administrative Law (3)
Law 910     Antitrust (3)
Law 918     Internet Law (2–3)
Law 922     Trademarks and Trade Dress (2)
Law 931     Patents (2)
Law 980     Copyrights (2–3)
Law 989     Mass Media Law (2)

Courses to total 90 credits for this degree

4. Make the following changes to the Juris Doctor Degree: Litigation and Alternative Dispute Resolution Emphasis

A minimum of one doctrinal class in Law 904, Law 907, Law 916, Law 930, Law 940, Law 952, Law 953, Law 960, or Law 985 is required.


Students pursuing this emphasis must earn a minimum grade of ‘C’ in each course taken to satisfy Litigation & Alternative Dispute Resolution emphasis requirements, plus a cumulative 2.50 grade point average over all courses used to satisfy Litigation & Alternative Dispute Resolution emphasis requirements.

Law 917     Negotiation and Appropriate Dispute Resolution (3)
Law 950     Evidence (3)

One trial skills course class chosen from the following:
Law 954     Trial Skills (3)
Law 958     Trial Advocacy (2)

One mediation course class chosen from the following:
Law 912     Civil Mediation (2)
Law 913     Family Mediation (2)

One skills course class chosen from the following:
Law 956     Moot Court (1–2)
Law 957     Mock Trial (2)
Law 973     Non-Classroom Credit Public Service Externship (1–10)
Law 974     Legal Aid Clinic (1–3, max 6)
Law 975     Classroom Credit Public Service Externship (1–5)
Law 976     Semester in Practice (1–12)
Law 995     Main Street Law Clinic (1–3)
Law 996     Immigration Law Clinic (1–3)
Law 997     Mediation Clinic (1–3)
Law 998     Tax Clinic (2–3)
Ten credits from the following (10 cr):
Law 904 Federal Courts (3)
Law 907 Administrative Law (3)
Law 914 Dispute Resolution (1)
Law 916 Public International Law (3)
Law 930 Taxation (3)
Law 940 International Human Rights (3)
Law 952 Remedies (3)
Law 953 Criminal Procedure (3)
Law 955 Appellate Advocacy Program (2)
Law 960 Conflict of Laws (2)
Law 966 Legal Drafting (2)
Law 967 Advanced Legal Writing (2)
Law 970 Advanced Legal Research (2)
Law 971 Lawyering Process (2)
Law 974 Legal Aid Clinic (1–3, max 6)
Law 975 Classroom Credit Public Service Externship (1–5, max 10)
Law 976 Semester in Practice (1–12)
Law 977 Clinical Lab (1)
Law 985 Immigration Law and Policy (3)
Law 993 Appellate Clinic (1–3)
Law 995 Main Street Law Clinic (1–3, max 6)
Law 996 Immigration Law Clinic (1–3)
Law 997 Mediation Clinic (1–3, max 6)
Law 998 Tax Clinic (2–3, max 6)

Courses to total 90 credits for this degree

5. Make the following curricular changes to the Juris Doctor Degree: Natural Resources and Environmental Law Emphasis

Students pursuing this emphasis must earn a minimum grade of ‘C’ in each course taken to satisfy Natural Resources and Environmental Law emphasis requirements, plus a cumulative 2.50 grade point average over all courses used to satisfy Natural Resources and Environmental Law emphasis requirements.

Required courses:
Law 907 Administrative Law (3)
Law 971 Lawyering Process (2)

One class chosen from the following:
Law 912 Civil Mediation (2 cr)
Law 913 Family Mediation (2 cr)
Law 914 Dispute Resolution (1 cr, max 4)
Law 917 Negotiation and Appropriate Dispute Resolution (3 cr)
Law 954 Trial Skills (3 cr)
Law 956 Moot Court (1-2 cr)
Law 957 Mock Trial (2 cr)
Law 958 Trial Advocacy (2 cr)
Law 971 Lawyering Process Seminar (2 cr)
Law 974 Legal Aid Clinic (1-3 cr, max 6)
Law 975 Classroom Credit Public Service Externship
Law 976  Semester in Practice (1-12 cr, max 12)
Law 977  Clinical Lab (1 cr, max 4)
Law 978  Small Business Legal Clinic (1-3 cr, max 6)

Twelve  Ten credits chosen from the following (42 cr):
Law 852  Natural Resource and Environmental Law Field Course (2)
Law 855  Water Law Practicum (2–3)
Law 906  Natural Resources Law Seminar (3)
Law 934  Land Use Law and Planning (3)
Law 937  Wildlife Law and Policy (3)
Law 938  International Environmental and Water Law (3)
Law 939  Law, Science, and the Environment (2 cr)
Law 942  Water Law I (1–2)
Law 946  Water and Energy Policy Seminar (2)
Law 947  Environmental Law (3)
Law 948  Introduction to Natural Resources Law (3)
Law 949  Native American Law (3)
Law 951  Environmental Policy (3)
Law 969  Water Law II (1-2)
Law 979  Native American Natural Resource Law (3)
Law 994  Economic Development Clinic (1–3)
WR 506  Interdisciplinary Methods in Water Resources (3)

Courses to total 90 credits for this degree

MATHEMATICS

1. Add the following course

Math 438  Mathematical Modeling (3 cr)
Topics in the use of mathematics to model phenomena from science, business, economics, and engineering.
Prereq: Math 310 and Math 330

2. Change the following courses

Math 130  Finite Mathematics (3 cr)
Gen Ed: Mathematics
Systems of linear equations and inequalities, matrices, linear programming, and probability.
Prereq: Sufficient score on SAT, ACT, or COMPASS Math Test math placement test; or Math 108 with a C or better. Required test scores can be found here: http://www.uidaho.edu/registrar/registration/placement

Math 137  Algebra with Applications (3 cr)
Carries no credit after Math 143. Algebraic, exponential, logarithmic functions, systems of equations, applications.
Prereq: A grade of C or better in Math 108 or sufficiently high score on SAT, ACT, or COMPASS Math Test math placement test. It is recommended that Math 137 be taken within two years of passing Math 108 or its equivalent. Math 137 is not sufficient preparation for Math 170. Students intending to take Math 170 should enroll in Math 143 instead. Required test scores can be found here: http://www.uidaho.edu/registrar/registration/placement

Math 143  Pre-calculus Algebra and Analytic Geometry (3 cr)
Gen Ed: Mathematics
Carries no credit after Math 160 or Math 170; carries 2 credits after Math 137. Algebraic, exponential, logarithmic functions; graphs of conics; zeros of polynomials; systems of equations, induction. Taught using the Polya Math Center, a studio environment featuring group study, one-to-one interaction with instructors, computer-mediated modules, and lectures.

**Prereq:** Sufficient score on SAT, ACT, or COMPASS Math Test math placement test; or Math 108 with grade of C or better. It is recommended that Math 143 be taken within two years of passing Math 108 or its equivalent. Required test scores can be found here: http://www.uidaho.edu/registrar/registration/placement

Math 144 Analytic Trigonometry (1 cr)
Not open for cr to students who have previous high school or college cr in trigonometry. Trigonometric functions, inverse functions, applications. Taught using the Polya Math Center, a studio environment featuring group study, one-to-one interaction with instructors, computer-mediated modules, and lectures.

**Prereq:** Sufficient score on SAT, ACT, or COMPASS Math Test math placement test. Students may qualify by enrolling concurrently in Math 143 or Math 170. Required test scores can be found here: http://www.uidaho.edu/registrar/registration/placement

Math 160 Survey of Calculus (4 cr)
*Gen Ed: Mathematics*
Carries no credit after Math 170. Functions, graphing, derivative, integral, Overview of functions, and graphs, derivatives, integrals, exponential and logarithmic functions, functions of several variables, and differential equations. Primarily for students who need only one semester of calculus, such as students in business, life sciences, or architecture who need only one semester of calculus.

**Prereq:** Sufficient score on SAT, ACT, or COMPASS Math Test math placement test, or Math 137 with a C or better, or Math 143 with a C or better. Required test scores can be found here: http://www.uidaho.edu/registrar/registration/placement

Math 170 Analytic Geometry and Calculus I (4 cr)
*Gen Ed: Mathematics*
Carries 2 credits after Math 160. Functions, limits, continuity, differentiation, integration, applications, differentiation and integration of transcendental functions. Primarily for students in engineering, mathematics, science or computer science.

**Prereq:** Math 143 (with a grade of C or better) and Math 144 (concurrent enrollment in Math 144 is allowed although it is recommended that students complete Math 144 before enrolling in Math 170); or demonstrated proficiency through a sufficiently high score on the ACT, SAT, or COMPASS test math placement test. Required test scores can be found here: http://www.uidaho.edu/registrar/registration/placement

Math 176 Discrete Mathematics (3 cr)
Induction, set theory, graph theory, number systems, Boolean algebra, and elementary counting.

**Prereq:** Math 143 or sufficiently high score on SAT, ACT, or COMPASS Math Test math placement test. Required test scores can be found here: http://www.uidaho.edu/registrar/registration/placement

Math 215 Introduction to Higher Mathematics Proof via Number Theory (3 cr)
Carries no credit after Math 461 or Math 471. The primary goal of this course is to teach students how to read and write mathematical proofs. Topics include logic and proof techniques, as well as fundamental mathematical structures such as sets, relations, functions, and number systems. An introduction to mathematical thinking and proof through the development of the basic results of elementary number theory. Emphasis on techniques of mathematical proofs, reading and writing proofs, and fundamental mathematical structures.

**Prereq:** Math 175 and Math 176 permission

MathMthE 519 (s) Special Topics (cr arr)
Special topics of interest to mathematics teachers. This course is specifically designed for the MAT program, and will not satisfy the requirements of other mathematics degree programs.
**Prereq:** Permission

**Math 528 Differentiable Manifolds (3 cr)**
Fundamentals of smooth manifolds, tangent spaces, vector fields, Lie groups, integration on manifolds, and applications. Cooperative: open to WSU degree-seeking students.

**Prereq:** Math 521, and Math 474, 472

3. Change the curricular requirement of *Mathematics* (B.S.)

Required course work includes the university requirements (see regulation J-3) and:

**Basic Courses:**

- Math 170 Analytic Geometry and Calculus I (4 cr)
- Math 175 Analytic Geometry and Calculus II (4 cr)
- Math 275 Analytic Geometry and Calculus III (3 cr)

**One of the following (3 cr):**
- Math 330 Linear Algebra (3 cr)
- Math 430 Advanced Linear Algebra (3 cr)

And one of the following options:

**A. General Option**

This is the traditional curriculum in Mathematics. It is more mathematically rigorous than the other options. It is especially good for secondary education majors and students intending to go to graduate school in Mathematics or other sciences.

**Math Courses:**

- **Math 176 Discrete Mathematics (3 cr)**
- Math 215 Introduction to Higher Mathematics Proof via Number Theory (3 cr)
- Math 310 Ordinary Differential Equations (3 cr)
- Math 461 Abstract Algebra I (3 cr)
- Math 471 Introduction to Analysis I (3 cr)

**One of the following (3 cr):**
- Math 430 Advanced Linear Algebra (3 cr)
- Math 452 Mathematical Statistics (3 cr)
- Math 453 Stochastic Models (3 cr)
- Math 462 Abstract Algebra II (3 cr)
- Math 472 Introduction to Analysis II (3 cr)
- **Math 476 Combinatorics (3 cr)**

**One of the following (9-10):**
- Three credits in Math electives numbered above 310 and six additional credits chosen from Math 385, ECE 455, Stat 431, or any Math course numbered above 400.
- EDCI 401 plus an additional nine credits chosen from ECE 455, Stat 301, Stat 431, or any Math elective numbered above 310.
- Four Math courses numbered above 310 (12 cr)

**Supporting Courses:**

- Phys 211 Engineering Physics I (3 cr)
- Phys 212 Engineering Physics II (3 cr)
One of the following (3 cr):
- Stat 251 Statistical Methods (3 cr)
- Stat 301 Probability and Statistics (3 cr)

One of the following (3-4 cr):
- CS 112 Computational Thinking and Problem Solving (3 cr)
- CS 120 Computer Science I (4 cr)

Courses to total 120 credits for this degree

B. Applied - Statistics Option

The emphasis is on the design and analysis of experiments. With a major or minor in another department this is an excellent preparation for work in industry or for graduate school in Statistics.

Math Courses:
- Math 451 Probability Theory (3 cr)
- Math 452 Mathematical Statistics (3 cr)

At least two courses from the following (6 cr):
- Math 395 Analysis of Algorithms (3 cr)
- Math 426 Discrete Optimization (3 cr)
- Math 428 Numerical Methods (3 cr)
- Math 430 Advanced Linear Algebra (3 cr)
- Math 432 Numerical Linear Algebra (3 cr)
- Math 471 Introduction to Analysis I (3 cr)
- Math 472 Introduction to Analysis II (3 cr)

Supporting Courses:
- Stat 426 SAS Programming (3 cr)
- Stat 431 Statistical Analysis (3 cr)

One course selected from the following (3 cr):
- CS 112 Computational Thinking and Problem Solving (3 cr)
- CS 120 Computer Science I (4 cr)

One course selected from the following (3 cr):
- Stat 251 Statistical Methods (3 cr)
- Stat 301 Probability and Statistics (recommended) (3 cr)

At least two courses from the following (6 cr):
- Econ 453 Econometrics (3 cr)
- Math 453 Stochastic Models (3 cr)
- Stat 422 Survey Sampling Methods (3 cr)
- Stat 507 Experimental Design (3 cr)
- Stat 550 Regression (3 cr)
- Stat 514 Nonparametric Statistics (3 cr)
- Stat 519 Multivariate Analysis (3 cr)
- Stat 555 Statistical Ecology (3 cr)

Approved electives in fields where statistics is applied (not to be in Statistics (Stat) courses) (6 cr)

Courses to total 120 credits for this degree

C. Applied - Computation Option
The emphasis is on the mathematics related to computer science and technology. With a major or minor in computer sciences this is a good preparation for work in the computer industry.

Math courses:
- Math 176  Discrete Mathematics (3 cr)
- Math 215  Proof via Number Theory (3 cr)
- Math 310  Ordinary Differential Equations (3 cr)
- Math 385  Theory of Computation (3 cr)
- Math 395  Analysis of Algorithms (3 cr)
- Math 415  Cryptography (3 cr)

One of the following (3 cr):
- Math 428  Numerical Methods (3 cr)
- Math 432  Numerical Linear Algebra (3 cr)

One of the following (3 cr):
- ECE 455  Information and Coding Theory (3 cr)
- Math 326  Linear Optimization (3 cr)
- Math 376  Discrete Mathematics II (3 cr)
- Math 452  Mathematical Statistics (3 cr)
- Stat 301  Probability and Statistics (3 cr)
- Stat 431  Statistical Analysis (3 cr)
- Any 400-level Math course

Three Two additional courses from the following (96 cr):
- Math 415  Cryptography (3 cr)
- Math 376  Discrete Mathematics II (3 cr)
- Math 426  Discrete Optimization (3 cr)
- Math 428  Numerical Methods (3 cr)
- Math 430  Advanced Linear Algebra (3 cr)
- Math 432  Numerical Linear Algebra (3 cr)
- Math 451  Probability Theory (3 cr)
- Math 452  Mathematical Statistics (3 cr)
- Math 461  Abstract Algebra I (3 cr)
- Math 462  Abstract Algebra II (3 cr)
- Math 476  Combinatorics (3 cr)
- Math 480  Partial Differential Equations (3 cr)

Supporting courses:
- CS 120  Computer Science I (4 cr)
- CS 121  Computer Science II (3 cr)

Courses to total 120 credits for this degree

D. Applied – Scientific Modeling Option

The emphasis is on the mathematics used to model phenomena in the sciences, engineering, science, business, and economics. With a second major in a science one of these disciplines, this provides ideal preparation for graduate school.

Math courses:
- Math 176  Discrete Mathematics (3 cr)
- Math 215  Proof via Number Theory (3 cr)
- Math 310  Ordinary Differential Equations (3 cr)
- Math 428  Numerical Methods (3 cr)
- Math 451  Probability Theory (3 cr)
One of the following (3 cr):
- ECE 455 Information and Coding Theory (3 cr)
- Math 437 Mathematical Biology (3 cr)
- Math 438 Mathematical Modeling (3 cr)
- WLF 552 Ecological Modeling (3 cr)

Five Three additional courses from the following (15 cr):
- ECE 350 Signals and Systems I (3 cr)
- ECE 450 Signals and Systems II (3 cr)
- ECE 455 Information and Coding Theory (3 cr)
- Math 326 Linear Optimization (3 cr)
- Math 371 Mathematical Physics (3 cr)
- Math 376 Discrete Mathematics II (3 cr)
- Math 415 Cryptography (3 cr)
- Math 420 Complex Variables (3 cr)
- Math 426 Discrete Optimization (3 cr)
- Math 428 Numerical Methods (3 cr)
- Math 432 Numerical Linear Algebra (3 cr)
- Math 437 Mathematical Biology (3 cr)
- Math 438 Mathematical Modeling (3 cr)
- Math 452 Mathematical Statistics (3 cr)
- Math 453 Stochastic Models (3 cr)
- Math 471 Introduction to Analysis I (3 cr)
- Math 472 Introduction to Analysis II (3 cr)
- Math 476 Combinatorics (3 cr)
- Math 480 Partial Differential Equations (3 cr)
- Stat 301 Probability and Statistics (3 cr)
- WLF 552 Ecological Modeling (3 cr)

Supporting courses:
- Two courses at the 300 level or above in one area of science, engineering, or other quantitative area.

One of the following (3-4 cr):
- CS 112 Computational Thinking and Problem Solving (3 cr)
- CS 120 Computer Science I (4 cr)

One of the following (3 cr):
- Stat 301 Probability and Statistics (3 cr)
- Math 452 Mathematical Statistics (3 cr)

Six credits of advisor-approved quantitative electives (from courses in science, engineering, business, economics, etc.)

Courses to total 120 credits for this degree

E. Applied - Actuarial Science and Finance Option

This curriculum provides the background to become an actuary and work in the insurance industry, or to work in finance.

Math courses:
- Math 310 Ordinary Differential Equations (3 cr)
- Math 451 Probability Theory (3 cr)
- Math 452 Mathematical Statistics (3 cr)

Three additional courses chosen from Math courses numbered above 400 or Stat 422 (9 cr)
Supporting courses:
- Acct 201  Introduction to Financial Accounting (3 cr)
- Acct 202  Introduction to Managerial Accounting (3 cr)
- Bus 301  Financial Management (3 cr)
- Stat 431  Statistical Analysis (3 cr)

One of the following choices (4-6 cr):
- Econ 201  Principles of Macroeconomics (3 cr)
- Econ 202  Principles of Microeconomics (3 cr)
  OR
- Econ 272  Foundations of Economic Analysis (4 cr)

One of the following (3-4 cr):
- CS 112  Computational Thinking and Problem Solving (3 cr)
- CS 120  Computer Science I (4 cr)

One of the following (3 cr):
- Stat 251  Statistical Methods (3 cr)
- Stat 301  Probability and Statistics (preferred) (3 cr)

One of the following (1-3 cr):
- Bus 339  Spreadsheet Modeling (1 cr)
- Stat 426  SAS Programming (3 cr)

At least three courses selected from the following (7-9 cr):
- Bus 302  Intermediate Financial Management (3 cr)
- Bus 381  International Finance (3 cr)
- Bus 408  Security Analysis (3 cr)
- Bus 463  Portfolio Management (3 cr)
- Bus 464  Derivatives and Risk Management (3 cr)
- Bus 465  Introduction to Market Trading (3 cr)
- Bus 469  Risk and Insurance (3 cr)
- Econ 351  Intermediate Macroeconomic Analysis (3 cr)
- Econ 352  Intermediate Microeconomic Analysis (3 cr)
- Math 455  Applied Actuarial Science (1 cr)

One of the following (3 cr):
- Stat 433  Econometrics (3 cr)
- Stat 550  Regression (3 cr)

Courses to total 120 credits for this degree

F. Applied - Mathematical Biology Option

This option offers training across Mathematics and Biology and provides the background to pursue a career in technical industries and to obtain graduate degrees in Biomathematics, Biostatistics, and Bioinformatics

Math and Statistics courses:
- Math 437  Mathematical Biology (3 cr)
- Math 451 or Stat 451  Probability Theory (3 cr)
- Math 452 or Stat 452  Mathematical Statistics (3 cr)

One course from the following (3 cr):
- Stat 251  Statistical Methods (3 cr)
Stat 301  Probability and Statistics (3 cr)

Two courses from the following (6 cr):
Math 310  Ordinary Differential Equations (3 cr)
Math 453  Stochastic Models (3 cr)
Stat 431  Statistical Analysis (3 cr)

Two courses from the following (6 cr):
Math 428  Numerical Methods (3 cr)
Math 430  Advanced Linear Algebra (3 cr)
Math 480  Partial Differential Equations (3 cr)

Biology courses:
Biol 114  Organisms and Environments (4 cr)
Biol 115  Cells and the Evolution of Life (4 cr)
Biol 310  Genetics (3 cr)
Biol 456  Computer Skills for Biologists (3 cr)

12 credits of Biology courses at the 300-level or above (12 cr)

Supporting courses:
Chem 111  Principles of Chemistry I (4 cr)

Courses to total 120 credits for this degree

NATURAL RESOURCES

1. Add the following courses

NR 300  Ecology and Conservation Biology Thesis Seminar (1 cr)
Short title: ECB Thesis Seminar
Prereq: Instructor Permission

NR 321 Ecology in the Wilderness (3 cr)
Fundamental principles of the science of ecology. Major topics covered by the course include the physical environment, how organisms interact with each other and their environment, evolutionary processes, population dynamics, communities, energy flow and ecosystems, human influences on ecosystems, and the integration and scaling of ecological processes through systems ecology. This course is only offered in a wilderness setting and is complementary to the re-required co-requisite course, Field Ecology (NR 322). Computer-based materials are used extensively for guided independent learning of ecology. Course information: EcologyOnline.net. Recommended Preparation: Introductory botany and zoology.
Prereq: Biol 102 and 102L, Biol 114, Biol 115, or permission
Coreq: NR 322

NR 322 Field Ecology (2 cr)
Introduction to field methods in the science of ecology. This field course, offered in the Frank Church River of No Return Wilderness, emphasizes a unique outdoor experience for ecological observations and understanding. Methods for monitoring and ecological assessment will include experimental design, use of instruments for data collection, and data analysis.
Prereq: Biol 102 and 102L, Biol 114, Biol 115, or permission
Coreq: NR 321

2. Change the following course
NR 101 Exploring Natural Resources (12 cr)
Introduction to the interdisciplinary fields and professions in natural resources. Includes field trips.
(Fall only)


Improving global environmental conditions requires researchers and other citizens who can understand ecological principles, who can analyze and interpret ecological conditions, and who can predict the consequences of alternative natural resource management decisions. Understanding the importance of social values and policy for ecology and management of rare, threatened, and endangered species and their habitat is necessary to reverse the order of their decline. In the ecology and conservation biology program, students learn to apply biological, ecological, social, and political understanding to solve problems related to long-term conservation of biological diversity and to sustainable management of ecosystems.

This degree combines the biological, ecological, and social sciences to provide (1) an interdisciplinary understanding of the composition, structure, and processes of ecosystems, and (2) the skills necessary to provide long-term planning for the conservation and sustainable management of populations, species, and ecosystems.

Students will examine topics from molecular to landscape scales and integrate the social and biophysical worlds. Graduates will be equipped to address the issues and problems of sustainable resource use, conservation of rare, threatened, or endangered biota, management of ecosystems, and long-term conservation of biological diversity. This program is flexible enough to adapt to the interests of individual students, while remaining firmly grounded in ecological principles applicable to species, populations, communities, landscapes, and ecosystems. It is distinctly different from the emphasis on management in the other forestry, wildlife, fisheries, range, and conservation social sciences programs, or the more general environmental science programs. Graduates of the program often continue advanced studies at national and international universities. This natural resources "liberal science" degree can also serve as pre-professional training for law school, or for professional positions in federal, state, and private environmental organizations including local and regional planning groups and consulting firms.

The program requires 120 credits, and students must choose either the natural resources ecology or conservation biology option. Students pursuing a B.S. in Ecology & Conservation Biology must receive a grade of 'C' or better in each of the following 4 indicator courses to register in upper division courses in CSS/Fish/For/REM/WLF and to graduate with a B.S. in either option: Biol 114, Biol 213, Stat 251, For 221 or REM 221. Before students are allowed to begin their senior thesis or project (485 or 497), they must attend two evening thesis / project sessions and one senior poster presentation.

Required course work includes the university requirements (see regulation J-3) and:

Biol 114 Organisms and Environments (4 cr)
Biol 115 Cells and the Evolution of Life (4 cr)
Biol 213 Principles of Biological Structure and Function (4 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
CSS 383 Natural Resource and Ecosystem Service Economics (3 cr)
Engl 317 Technical Writing (3 cr)
For 235 or CSS 235 Society and Natural Resources (3 cr)
For 375 Introduction to Spatial Analysis for Natural Resource Management (3 cr)
NR 101 Exploring Natural Resources (1 cr)
NR 200 (s) Seminar (1 cr)

NR 300 Ecology and Conservation Biology Thesis Seminar (1 cr)
Stat 251 Statistical Methods (3 cr)
One of the following (4 cr):
Chem 101  Introduction to Chemistry I (4 cr)
Chem 111  Principles of Chemistry I (4 cr)

One of the following (3-4 cr):
Econ 202  Principles of Microeconomics (3 cr)
Econ 272  Foundations of Economic Analysis (3-4 cr)

One of the following (3-4 cr):
Biol 314  Ecology and Population Biology (4 cr)
For 221  Ecology (3 cr)
REM 221  Ecology (3 cr)

One of the following (4 cr):
Math 160  Survey of Calculus (4 cr)
Math 170  Analytic Geometry and Calculus I (4 cr)

One of the following (3-4 cr):
For 320  Dendrology (4 cr)
REM 341  Systematic Botany (3 cr)

Choose one of the following (1 cr):
CSS 483  Senior Project Presentation (1 cr)
Fish 483  Senior Project Presentation (1 cr)
For 483  Senior Project Presentation (1 cr)
REM 483  Senior Project Presentation (1 cr)
WLF 483  Senior Project Presentation (1 cr)
Fish 473  ECB Senior Presentation (1 cr)
For 473  ECB Senior Presentation (1 cr)
NRS 473  ECB Senior Presentation (1 cr)
REM 473  ECB Senior Presentation (1 cr)
WLF 473  ECB Senior Presentation (1 cr)

Choose one of the following (3 cr):
CSS 485  Ecology and Conservation Biology Internship (3 cr)
Fish 485  Ecology and Conservation Biology Internship (3 cr)
Fish 497  Senior Thesis (3 cr)
For 485  Ecology and Conservation Biology Internship (3 cr)
For 497  Senior Thesis (3 cr)
NR 497  Senior Thesis (3 cr)
REM 485  Ecology and Conservation Biology Internship (3 cr)
REM 497  Senior Thesis (3 cr)
WLF 485  Ecology and Conservation Biology Internship (3 cr)
WLF 497  Senior Thesis (3 cr)

And one of the following options:

A. Natural Resources Ecology Option

The natural resources ecology option combines ecological theory, field experience, and quantitative tools to gain an interdisciplinary understanding of the structure and function of ecosystems. This field covers ecological topics from local, regional, and landscape scales while integrating the social and biophysical worlds.


To graduate in this option, students must achieve a "C" or better in the following six core courses: NR 200, For 330, REM 429, Soil 205/206, and WLF 448 or Fish 316.

For 330  Forest Soil and Canopy Processes (4 cr)
REM 429 Landscape Ecology (3 cr)
Soil 205 The Soil Ecosystem (3 cr)
Soil 206 The Soil Ecosystem Lab (1 cr)
WLF 448 Fish & Wildlife Population Ecology (4 cr)

One of the following (3 cr):
Phys 100, Phys 100L Fundamentals of Physics and Lab (4 cr)
Phys 111, Phys 111L General Physics I and Lab (4 cr)

One of the following (2-4 cr):
WLF 316 Wildlife Ecology II (4 cr)
Fish 316 Principles of Population Dynamics (2 cr)

Quantitative Resource Analysis Restricted Electives (one course from the following):
CSS 310 Social Research Methods in Conservation (4 cr)
For 472 or REM 472 Remote Sensing of Environment (4 cr)
Geog 385 GIS Primer (3 cr)
REM 410 Principles of Vegetation Measurement and Assessment (2 cr)*
REM 411 Ecological Monitoring and Analysis (2 cr)*
Stat 431 Statistical Analysis (3 cr)
Stat 422 Survey Sampling Methods (3 cr)
WLF 448 Fish & Wildlife Population Ecology (4 cr)

Resource Management Restricted Electives (one course from the following):
CSS 385 Conservation Management and Planning I (4 cr)
CSS 490 Wilderness and Protected Area Management (3 cr)
CSS 496 Monitoring Impacts in Protected Areas and Wilderness (3 cr)
Fish 418 Fisheries Management (4 cr)
For 424 Forest Dynamics and Management (4 cr)
For 462 Watershed Science and Management (3 cr)
REM 456 Integrated Rangeland Management (3 cr)
WLF 492 Wildlife Management (4 cr)

Ecology Restricted Electives (at least 2 credits from Fish 315, Fish 415, Fish 430, REM 460, and/or WLF 315) (10 cr):
Biol 421 Advanced Evolutionary Biology (3 cr)
Biol 478 Animal Behavior (3 cr)
Ent 469 Introduction to Forest Insects (2 cr)
Fish 314 Fish Ecology (3 cr)
Fish 315 Fish Ecology Lab (1 cr)
Fish 415 Limnology (4 cr)
Fish 430 Riparian Ecology and Management (3 cr)
For 326 Fire Ecology and Management (3 cr)
For 468 Forest and Plant Pathology (2 cr)
Geog 410 Biogeography (3 cr)
MMBB 425 Microbial Ecology (3 cr)
PiSc 410 Invasive Plant Biology (3 cr)
REM 440 Wildland Restoration Ecology (3 cr)
REM 450 Global Environmental Change (3 cr)
REM 459 Rangeland Ecology (2 cr)
REM 460 Integrating GIS and Field Studies in Rangelands (2 cr)
WLF 314 Wildlife Ecology I (3 cr)
WLF 315  Wildlife Ecology I Lab (1 cr)
WLF 440  Conservation Biology (3 cr)

Social/Political Restricted Electives (one course from the following):
Comm 410  Conflict Management (3 cr)
CSS 387  Environmental Communication Skills (3 cr)
NRS 462  Natural Resource Policy (3 cr)
CSS 486  Public Involvement in Natural Resource Management (3 cr)
CSS 489  Personalities and Philosophies in Conservation (3 cr)
CSS 492  Ecotourism Principles and Issues (3 cr)
CSS 493  International Land Preservation and Conservation Systems (3 cr)
For 484  Forest Policy and Administration (2 cr)
Geog 420  Land, Resources, and Environment (3 cr)
Hist 424  American Environmental History (3 cr)
Phil 452  Environmental Philosophy (3 cr)
PolS 364 or CSS 364  Politics of the Environment (3 cr)

Courses to total 120 credits for this degree

*Note: Both REM 410 and REM 411 must be completed to satisfy Quantitative Resource Analysis Restricted Elective requirement.

B. Conservation Biology Option

The conservation biology option is centered around a multidisciplinary curriculum that provides students with training to work in jobs aimed at conserving the earth's biodiversity. This option provides a broad-based education that covers biological diversity from the genetic level to the landscape level, and provides additional training in social sciences and management. In the words of Hunter (1996), "Conservation biology is cross-disciplinary, reaching far beyond biology into subjects such as philosophy, economics, and sociology; disciplines that are concerned with the social environment in which we practice conservation--as well as into subjects such as law and education that determine the ways we implement conservation."

To graduate in this option, students must achieve a "C" or better in the following seven core courses:
Biol 421, NR 200, REM 429, Phil 452, CSS 492 or CSS 493, Fish or WLF 316, and WLF 440, and WLF 448.

Biol 421  Advanced Evolutionary Biology (3 cr)
Phil 452  Environmental Philosophy (3 cr)
REM 429  Landscape Ecology (3 cr)
WLF 440  Conservation Biology (3 cr)
WLF 448  Fish & Wildlife Population Ecology (4 cr)

One of the following (3 cr):
Biol 310  Genetics (3 cr)
Gene 314  General Genetics (3 cr)

One of the following (3 cr):
CSS 492  Ecotourism Principles and Issues (3 cr)
CSS 493  International Land Preservation and Conservation Systems (3 cr)
REM 450  Global Environmental Change (3 cr)

One of the following (2-4 cr):
WLF 316  Wildlife Ecology II (4 cr)
Fish 316  Principles of Population Dynamics (2 cr)
Quantitative Resource Analysis Restricted Electives (one course from the following):
CSS 310  Social Research Methods in Conservation (4 cr)
For 472 or REM 472  Remote Sensing of Environment (4 cr)
Geog 385  GIS Primer (3 cr)
REM 410  Principles of Vegetation Measurement and Assessment (2 cr)*
REM 411  Ecological Monitoring and Analysis (2 cr)*
Stat 422  Survey Sampling Methods (3 cr)
Stat 431  Statistical Analysis (3 cr)
WLF 448  Fish & Wildlife Population Ecology (4 cr)

Resource Management Restricted Electives (one course from the following):
CSS 385  Conservation Management and Planning I (4 cr)
CSS 490  Wilderness and Protected Area Management (3 cr)
CSS 496  Monitoring Impacts in Protected Areas and Wilderness (3 cr)
Fish 418  Fisheries Management (4 cr)
For 424  Forest Dynamics and Management (4 cr)
For 462  Watershed Science and Management (3 cr)
REM 456  Integrated Rangeland Management (3 cr)
WLF 492  Wildlife Management (4 cr)

Ecology Restricted Electives (at least 2 credits from Fish 315, Fish 415, Fish 430, REM 460, and/or WLF 315) (6 cr):  
Biol 478  Animal Behavior (3 cr)
Ent 469  Introduction to Forest Insects (2 cr)
Fish 314  Fish Ecology (3 cr)
Fish 315  Fish Ecology Lab (1 cr)
Fish 415  Limnology (4 cr)
Fish 430  Riparian Ecology and Management (3 cr)
For 330  Forest Soil and Canopy Processes (4 cr)
For 326  Fire Ecology and Management (3 cr)
For 468  Forest and Plant Pathology (2 cr)
Geog 410  Biogeography (3 cr)
MMBB 425  Microbial Ecology (3 cr)
PISc 410  Invasive Plant Biology (3 cr)
REM 440  Wildland Restoration Ecology (3 cr)
REM 450  Global Environmental Change (3 cr)
REM 459  Rangeland Ecology (2 cr)
REM 460  Integrating GIS and Field Studies in Rangelands (2 cr)
WLF 314  Wildlife Ecology I (3 cr)
WLF 315  Wildlife Ecology I Lab (1 cr)

Organismal Biology Restricted Elective (one course from the following):
Biol 483  Mammalogy (3 cr)
Biol 489  Herpetology (4 cr)
Fish 481  Ichthyology (4 cr)
WLF 482  Ornithology (4 cr)

Social/Political Restricted Electives (one course from the following):
Comm 410  Conflict Management (3 cr)
CSS 387  Environmental Communication Skills (3 cr)
NRS 462  Natural Resource Policy (3 cr)
CSS 486  Public Involvement in Natural Resource Management (3 cr)
CSS 489  Personalities and Philosophies in Conservation (3 cr)
For 484  Forest Policy and Administration (2 cr)
Geog 420  Land, Resources, and Environment (3 cr)
Hist 424  American Environmental History (3 cr)
PolS 364 or CSS 364  Politics of the Environment (3 cr)

Courses to total 120 credits for this degree

*Note: Both REM 410 and REM 411 must be completed to satisfy Quantitative Resource Analysis Restricted Elective requirement.

NATURAL RESOURCES AND SOCIETY

1. Add the following courses

**NRS 450 Global Environmental Change (3 cr)**
Same as REM 450. Major global environmental changes addressed using an interdisciplinary approach. Topics may include processes and principles of ecosystems, biogeochemical cycles, impacts and mitigation of climatic change, atmospheric chemistry, feedbacks between climate and various earth system processes, and trends in global biodiversity.

*Prereq: Math 143 or Stat 251*

**NRS 473 ECB Senior Presentation (1 cr)**
See Fish 473.

2. Change the curricular requirements of the **Environmental Education Graduate Academic Certificate**

CSS 559  Writing Research and Project Proposals (1 cr)
CSS 560  Community Ecology for Env. Educators (3 cr)
CSS 562  Field Science Teaching (2 cr)
CSS 563  Place Based Env. Education (3 cr)
**CSS 566  Adv. Field Ecology Course Design (5 cr)**
**NRS 564  Teaching Environmental Education in Winter Environment (2 cr)**
**NRS 565  Science Communication and the Environment (3 cr)**
CSS 567  Environmental Education Teaching Practicum I (2 cr)
CSS 568  Environmental Education Teaching Practicum II (1 cr)
CSS 569  Environmental Education Teaching Practicum III (2 cr)
CSS 575  Leadership for the Environmental Educator (2 cr)

Courses to total 21 credits for this certificate

PHILOSOPHY

1. Add the following courses

**Phil 429 Contemporary Political Ethics (3 cr)**
See PolS 429.

**Phil 441 Genes and Justice: Comparative Biotechnology Policy Formation (3 cr)**
See PolS 441.

POLITICAL SCIENCE

1. Add the following courses

**PolS 207 Introduction to Political Behavior (3 cr)**
This course is an introduction to the political behavior of the American electorate. The basic goals of this course are to explain political behavior and investigate the consequences of it. In this course, we will primarily focus on voter turnout; however, we will also discuss other forms of political participation (e.g., giving money), vote choice, partisanship, and ideology. We will
address the following questions: Who votes? How have voting rates changed over time? What influences why some people vote? Who votes for whom? In order to address these questions, we will explore literatures, controversies, and theories of political behavior.

**PoIS 208 Introduction to Political Philosophy (3 cr)**
This course will introduce students to the practice and diverse products of political philosophy or normative political theory. Unlike theories in other areas of Political Science, which are typically focused on attempts to provide explanations and predictions regarding empirical phenomena, political philosophy is focused more on normative questions regarding how we ought to arrange our political affairs and how we ought to understand key morally laden concepts, such as obligation, rights, justice, and equality.

**PoIS 209 Introduction to Public Policy (3 cr)**
The study of public policy focuses on how political actors and institutions define public problems, generate solutions to solve them, and evaluate the consequences of those solutions. The course will focus on institutional arrangements for making public policy decisions, the role of various actors – including those from the private and non-profit sectors – in shaping policy outcomes, and the fundamentals of analytic approaches to public policy.

**PoIS 385 Political Psychology (3 cr)**
The main goal of this course is to provide students with a general understanding of the cognitive biases that influence the choices and behavior of individuals in the realm of global politics. Topics include but are not limited to: loss aversion, personality and beliefs, group influence, analogical reasoning, and emotion. Substantive examples will be drawn from research in International Relations and Comparative Politics. As such, the course will cover the psychology of international conflict, civil war, voting behavior, and public opinion.

2. Change the following courses

**PoIS 237 Introduction to International Politics (3 cr)**
*Gen Ed: Social Science, International*
Survey of approaches used to describe and explain conflict and cooperation among states in the international system; special emphasis on games of strategic interaction.

3. Change the following courses and remove joint-listing:

**PoIS 336J435/J535 Advanced Political Science and Research Methods**
*Political Research Methods and Approaches II (3 cr)*
Course covers advanced research design, social science quantitative methods and data collection issues. Additional projects/assignments reqd for grad cr.
*Prereq: PoIS 235 and Stat 251*

**PoIS 535 Advanced Political Science and Research Methods (3 cr)**
See PoIS J435/J535. Course covers advanced research design, social science quantitative methods and data collection issues.

4. Add and cross-list the following courses

**Phil 426 History of Political Philosophy I (3 cr)**
See PoIS 425.

**Phil 427 History of Political Philosophy II (3 cr)**
See PoIS 426.

5. Cross list the following courses
PoIS 429 Contemporary Political Ethics (3 cr)

*Same as Phil 429.* Current controversies concerning status and substance of ethical claims about deception, violence, coercion, and economic justice in politics and public action.

PoIS J441J/541 Genes and Justice: Comparative Biotechnology Policy Formation (3 cr)

*Same as Phil 441.* This course introduces students to the basic theoretical, ethical, and practical issues surrounding the rise and regulation of recent biotechnological and biomedical advances, including genetically modified animals and plants in agriculture, stem cell research and cloning in biomedical research, and reprodogenetics in medically assisted reproductive technology (NRGT). Students will learn about theoretical and ethical frameworks to investigate questions of domestic and international social justice associated with the task of governing modern biosciences, including food safety, fair-trade, consumer well-being, informed choice in medical treatment, conservation, biodiversity, and sustainability.

6. Make the following curricular changes to the Political Science Major (B.A.)

The B.A. degree emphasizes a traditional liberal arts education including a 16-credit foreign language requirement. Political Science majors must have a minimum of 35 credits in Political Science courses with at least 23 of those credits coming in upper-division courses. The course work also includes the university requirements (see regulation J-3), the general requirements for the B.A. degree, and:

- PoIS 101 Intro to Political Science and American Government (3 cr)
- PoIS 235 Political Research Methods and Approaches (3 cr)
- PoIS 425 or 426 History of Political Philosophy I or II (3 cr)
- PoIS 426
- Stat 251 Statistical Methods (3 cr)

American Politics (6 cr):
- PoIS 275 American State and Local Government (3 cr)
- PoIS 331 American Political Parties and Elections (3 cr)
- PoIS 332 American Congress (3 cr)
- PoIS 333 American Political Culture (3 cr)
- PoIS 335 American Interest Groups & Social Movements (3 cr)
- PoIS 360 Law and Society (3 cr)
- PoIS 364 Politics of the Environment (3 cr)
- PoIS 428 American Political Thought (3 cr)
- PoIS 437 American Presidency (3 cr)
- PoIS 451 Public Administration (3 cr)
- PoIS 452 Administrative Law and Regulation (3 cr)
- PoIS 462 Natural Resource Policy (3 cr)
- PoIS 467 Constitutional Law (3 cr)
- PoIS 468 Civil Liberties (3 cr)
- PoIS 469 The Judicial Process (3 cr)
- PoIS 471 Intergovernmental Relations (3 cr)
- PoIS 472 Local Government Politics and Administration (3 cr)

Comparative/International Relations (6 cr):
- PoIS 205 Introduction to Comparative Politics (3 cr)
- PoIS 237 International Politics (3 cr)
- PoIS 338 American Foreign Policy (3 cr)
- PoIS 364 European Politics (3 cr)
- PoIS 410 Game Theory (3 cr)
- PoIS 420 Introduction to Asian Politics (3 cr)
- PoIS 423 Politics, Policy and Gender (3 cr)
PolS 440  International Organizations and International Law (3 cr)
PolS 449  World Politics and War (3 cr)
PolS 473  Sustainable Community Development Planning (3 cr)
PolS 480  Politics of Development (3 cr)
PolS 487  Political Violence and Revolution (3 cr)

20 credits in upper-division related fields including: Anth, Bus, Comm, Econ, Engl, FLEN, Hist, IS, JAMM, MusH, OrgS 415, OrgS 444, Phil, PsyC, Soc, The 468, and The 469. Thesis and internship credits cannot be used to satisfy this requirement.

Courses to total 120 credits for this degree

Note: A maximum of 6 credits of political science internship and/or directed study courses may be counted toward meeting the political science credit requirements.

Political Science (B.A.)

The B.A. degree emphasizes a traditional liberal arts education including a 16-credit foreign language requirement. Political Science majors must have a minimum of 36 credits in Political Science courses with at least 18 of those credits coming in upper-division courses. The course work also includes the university requirements (see regulation J-3), the general requirements for the B.A. degree, and:

Political Science Core Requirements: 18 credits

PoIS 101  Introduction to Political Science and American Government (3 cr)
PoIS 235  Political Research Methods and Approaches (3 cr)

Three of five introductory courses:

PoIS 205  Introduction to Comparative Politics (3 cr)
PoIS 207  Introduction to Political Behavior (3 cr)
PoIS 208  Introduction to Political Philosophy (3 cr)
PoIS 209  Introduction to Public Policy (3 cr)
PoIS 237  Introduction to International Politics (3 cr)

PoIS 490  Senior Seminar (3 cr) (senior standing or 24 credit hours in political science)

Additional Political Science Upper Division Requirements: 18 credits

Students may focus their interests in political science by choosing among courses in the following core areas. The allocation of those courses is subject to the approval of the faculty advisor. A maximum of 6 credits of political science internship and/or directed study courses may be counted toward meeting these political science credit requirements.

1. American Political Institutions & Behavior
PoIS 332  American Congress (3 cr)
PoIS J437/J537  American Presidency (3 cr)
PoIS J469/J569  The Judicial Process (3 cr)
PoIS 331  American Political Parties and Elections (3 cr)
PoIS 335  American Interest Groups & Social Movements (3 cr)
PoIS 333  American Political Culture (3 cr)
PoIS 471  Intergovernmental Relations (3 cr)
PoIS 474  Public Opinion & Behavior
2. Public Administration and Public Policy
PolS 364 Politics of the Environment (3 cr)
PolS 338 American Foreign Policy (3 cr)
PolS 451 Public Administration (3 cr)
PolS 462 Natural Resource Policy (3 cr)
PolS J439/J539 Public Policy (3 cr)
PolS J473/J573 Sustainable Community Development Planning (3 cr)

3. International and Comparative Politics
PolS 381 European Politics (3 cr)
PolS J410/J510 Game Theory (3 cr)
PolS J420/J520 Introduction to Asian Politics (3 cr)
PolS J423/J523 Politics, Policy and Gender (3 cr)
PolS J449/J549 World Politics and War (3 cr)
PolS 440 (s) International Organizations and International Law (3 cr)
PolS J441/J541 Genes and Justice: Comparative Biotechnology Policy Formation (3 cr)
PolS J480/J580 Politics of Development (3 cr)
PolS J487/J587 Political Violence and Revolution (3 cr)

4. Public Law
PolS 360 Law and Society (3 cr)
PolS J452/J552 Administrative Law and Regulation (3 cr)
PolS J467/J567 Constitutional Law (3 cr)
PolS J468/J568 Civil Liberties (3 cr)

5. Political Philosophy
PolS J425/J525 History of Political Philosophy I (3 cr)
PolS J426/J526 History of Political Philosophy II (3 cr)
PolS J428/J528 American Political Thought (3 cr)
PolS J429/J529 Contemporary Political Ethics (3 cr)

20 credits in upper-division courses depending on student interest in consultation with your advisor. Thesis and internship credits cannot be used to satisfy this requirement.

Courses to total 120 credits for this degree.

7. Make the following curricular changes to the Comparative/International Politics Minor

PolS 205 Introduction to Comparative Politics (3 cr)
PolS 237 Introduction to International Politics (3 cr)

Five courses in the following areas (at least 3 credits in each area) (15 cr):

**Comparative Politics**
PolS 381 European Politics (3 cr)
PolS 480 Politics of Development (3 cr)

**International Politics**
PolS 440 International Organizations and International Law (3 cr)
PolS 449 World Politics and War (3 cr)
PolS 487 Political Violence and Revolution (3 cr)

Courses to total 20 credits for this minor

Note: Approved political science seminars may be substituted in this minor.
12 credits of Political Science courses from the following:

- PolS 381 European Politics (3 cr)
- PolS J410/J510 Game Theory (3 cr)
- PolS J420/J520 Introduction to Asian Politics (3 cr)
- PolS J423/J523 Politics, Policy and Gender (3 cr)
- PolS 440 (s) International Organizations and International Law (3 cr)
- PolS J441/J541 Genes and Justice (3 cr)
- PolS J449/J549 World Politics and War (3 cr)
- PolS J480/J580 Politics of Development (3 cr)
- PolS J487/J587 Political Violence and Revolution (3 cr)

Courses to total 18 credits for this minor.

8. Make the following curricular changes to the Political Science Minor

- PolS 101 Intro to Political Science and American Government (3 cr)

  One of the following (3 cr):
  - PolS 425 History of Political Philosophy I (3 cr)
  - PolS 426 History of Political Philosophy II (3 cr)
  - PolS 428 American Political Thought (3 cr)

  Three courses in American government/public law/public administration (only one course may be lower division) (9 cr)

  Two courses in comparative/international politics (only one course may be lower div) (6 cr)

Courses to total 20 credits for this minor

Note: Approved political science seminars may be substituted in this minor.

Any upper or lower division political science courses (15 cr)

Courses to total 18 credits for this minor.

SOCIOLOGY AND ANTHROPOLOGY

1. Add the following courses

- Soc 327 Sociology of the Family (3 cr)
  This class is designed to help students critically evaluate and understand the ways they think about families and the role of the families. In this course we will examine families as social institutions that vary across time and culture, the ways that families shape and are constrained by structural conditions, and the interactions between the family and other social institutions.
  **Prereq:** SOC 101

- Soc 426 Sociology of Sports (3 cr)
  See Anth 425.

- Soc 462 Senior Practicum (3 cr)
  This course will involve an applied, on-site experience with an organization or group. The applied experience will be the basis for a thesis that will analyze the applied experience by incorporating theory, methods, and knowledge gained from previously-taken sociology classes. In addition, the practicum will include class meetings covering topics related to the applied experience and career paths for majors in Sociology.
Prereq: SOC 101

Soc 464 Criminology Abroad (3 cr)
Criminology Abroad combines a 10-day intensive study abroad experience (typically a faculty-led trip over spring break), along with instruction in comparative criminology. Besides an experience abroad a student completes a directed research project related to criminology in the visited country.
Prereq: SOC 101

Anth J417/J517 Social Data Analysis (3 cr)
See Soc 417.

Anth J465/J565 Environment, Policy, and Justice (3 cr)
See Soc 465.

2. Change the following courses

Soc 413416 Qualitative Social Science Methods (3 cr)
This course introduces students to different methods of collecting qualitative data. Qualitative methods include interviews, focus group interviews, participant observation and ethnography. Students will learn qualitative research design and ethics, data collection processes, and strategies for data analysis. Students recommended to take this course no later than their junior year. See Anth J416/J516.

Soc 414417 Quantitative Social Science MethodsSocial Data Analysis (3 cr)
See Anth J417/J517.

Soc 465 Environment, Policy, and Justice (3 cr)
See as Anth J465/J565.

Anth J410/J510 Research Methods in Anthropology Qualitative Social Science Methods (3 cr)
Gen Ed: Senior Experience
Designing, conducting, and reporting research in anthropology. (Spring only) Same as Soc 408. This course introduces students to social science research methods that collect qualitative data. It will discuss research design and ethics, data collection processes, and data analysis. Because it is the anthropology capstone course, anthropology majors should take the course in their senior year. Additional work required for graduate credit.
Prereq: Anth 420

3. Make the following curricular changes to the Sociology Major (B.A. and B.S.)

Required course work includes the university requirements (see regulation J-3), the general requirements for either the B.A. or B.S. degree and the following courses (electives must be approved by the student's advisor):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anth 100</td>
<td>Introduction to Anthropology</td>
<td>3 cr</td>
</tr>
<tr>
<td>Soc 101</td>
<td>Introduction to Sociology</td>
<td>3 cr</td>
</tr>
<tr>
<td>Soc 311</td>
<td>Development of Social Theory</td>
<td>3 cr</td>
</tr>
</tbody>
</table>

Two of the following (6 cr):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soc 413408</td>
<td>Qualitative Social Science Methods</td>
<td>3 cr</td>
</tr>
<tr>
<td>Soc 414417</td>
<td>Quantitative Social Science Methods Social Data Analysis (3 cr)</td>
<td></td>
</tr>
<tr>
<td>Stat 251</td>
<td>Statistical Methods</td>
<td>3 cr</td>
</tr>
</tbody>
</table>
Related fields (e.g. anthropology, economics, environmental science, geography, history, political science, psychology, statistics, and women's and gender studies) (12 cr)

One of the following (3 cr):
- **Soc 423** Sociology of Prosperity: Social Class and Economics in the 21st Century (3 cr)
- **Soc 424** Sociology of Gender (3 cr)
- **Soc 427** Racial and Ethnic Relations (3 cr)
- **Soc 439** Inequalities in the Justice System (3 cr)

One of the following (3 cr):
- **Soc 340** Social Change & Globalization (3 cr)
- **Soc 341** Science, Technology, and Society (3 cr)
- **Soc 343** Power, Politics, and Society (3 cr)
- **Soc 465** Environment, Policy, and Justice (3 cr)

*Note: Must be approved by student's advisor*

Select one of the following emphases:
A. Criminology
   - **Soc 260** Intro to Deviance and Crime (3 cr)
   - **Soc 331** Criminology Theory (3 cr)

One of the following (3 cr):
- **Soc 460** Capstone: Sociology in Action (3 cr)
- **Soc 461** Capstone: Justice Policy Issues (3 cr)
- **Soc 462** Capstone: Senior Practicum (3 cr)
- **Soc 464** Capstone: Criminology Abroad (3 cr)

One of the following (3 cr):
- **PolS 467** Constitutional Law (3 cr)
- **PolS 468** Civil Liberties (3 cr)
- **PolS 469** The Judicial Process (3 cr)
- **Soc 420** Sociology of Law (3 cr)

Selected upper-division emphasis electives (12-15 cr):
- **Soc 315** Community Service Learning (1-4 cr, max 4)**
- **Soc 325** Family, Violence, and Society (3 cr)
- **Soc 330** Juvenile Delinquency (3 cr)
- **Soc 332** Sociology of Punishment (3 cr)
- **Soc 333** Elite and White Collar Crime (3 cr)
- **Soc 334** Police and Social Control (3 cr)
- **Soc 335** Terrorism, Society and Justice (3 cr)
- **Soc 336** Comparative Criminal Justice Systems (3 cr)
- **Soc 337** Violence and Society (3 cr)
- **Soc 338** Regulation of Vice (3 cr)
Soc 339  Crime and the Media (3 cr)
Soc 344  Urban Sociology (3 cr)
Soc 345  Extremism in American Society (3 cr)
Soc 346  Responding to Risk (3 cr)
Soc 403  Workshop (cr arr)
Soc 404  Special Topics (cr arr)
Soc 420  Sociology of Law (3 cr)
Soc 439  Inequalities in the Justice System (3 cr)
Soc 450  Dynamics of Social Protest (3 cr)
Soc 465  Environment, Policy, and Justice (3 cr)
Soc 498  Internship (1-6 cr, max arr)**
Soc 499  Directed Study (cr arr)**

Courses to total 120 credits for this degree
**Note: A maximum of 63 credits may be earned in Soc 315, Soc 498, and Soc 499, respectively

B. Inequalities and Globalization
Anth 301 or Soc 301  Introduction to Diversity and Stratification (3 cr)
Soc 311  Development of Social Theory (3 cr)

One of the following (3 cr):
Soc 460  Capstone: Sociology in Action (3 cr)
Soc 462  Capstone: Senior Practicum (3 cr)
Soc 464  Capstone: Criminology Abroad (3 cr)

One of the following (3 cr):
Soc 340  Social Change & Globalization (3 cr)
Soc 343  Power, Politics, and Society (3 cr)

One of the following (in addition to the similar requirement above for the Sociology major) (3-cr):
Soc 424  Sociology of Gender (3 cr)
Soc 427  Racial and Ethnic Relations (3 cr)
Soc 439  Inequalities in the Justice System (3 cr)

Selected upper-division emphasis electives (9-c) (15 cr):
Soc 313  Collective Behavior (3 cr)
Soc 315  Community Service Learning (1-4 cr, max 4)**
Soc 325  Family, Violence & Society (3 cr)
Soc 327  Sociology of the Family (3 cr)
Soc 335  Terrorism, Society and Justice (3 cr)
Soc 336  Comparative Criminal Justice Systems (3 cr)
Soc 340  Social Change & Globalization (3 cr)
Soc 341  Science, Technology, and Society (3 cr)
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Soc 343  Power, Politics, and Society (3 cr)  
Soc 345  Extremism in American Society (3 cr)  
Soc 346  Responding to Risk (3 cr)  
Soc 350  Food, Culture, and Society (3 cr)  
Soc 403  Workshop (cr arr)  
Soc 404  Special Topics (cr arr)  
Soc 424  Sociology of Gender (3 cr)  
Soc 427  Racial and Ethnic Relations (3 cr)  
Soc 431  Personal and Social Issues in Aging (3 cr)  
Soc 439  Inequalities in the Justice System (3 cr)  
Soc 450  Dynamics of Social Protest (3 cr)  
Soc 465  Environment, Policy, and Justice (3 cr)  
Soc 498  Internship (1-6 cr, max arr)**  
Anth 418  Anthropology of Tourism (3 cr)  
Anth 462  Human Issues in International Development (3 cr)  

Courses to total 120 credits for this degree

**Note: A maximum of 36 credits may be earned in Soc 315, Soc 498, and Soc 499 respectively

C. General Sociology

Soc 311  Development of Social Theory (3 cr)

One of the following (3 cr):

Soc 230  Social Problems (3 cr)
Soc 301  Diversity and Stratification (3 cr)

One of the following (3 cr):

Soc 460  Capstone: Sociology in Action (3 cr)
Soc 462  Capstone: Senior Practicum (3 cr)
Soc 464  Capstone: Criminology Abroad (3 cr)

One of the following (3 cr):

Soc 340  Social Change & Globalization (3 cr)
Soc 424  Sociology of Gender (3 cr)
Soc 427  Racial and Ethnic Relations (3 cr)

Selected upper-division emphasis electives (9 cr): (15 cr)

Soc 301  Introduction to Diversity and Stratification
Soc 313  Collective Behavior (3 cr)
Soc 315  Community Service Learning (1-4 cr, max 4)**
Soc 325  Family, Violence, and Society (3 cr)
4. Make the following curricular changes to the Anthropology Major (B.A. and B.S.)

Required course work includes the university requirements (see regulation J-3), the general requirements for either the B.A. or B.S. degree, and:

Anth 100 Introduction to Anthropology (3 cr)
Anth 220 Peoples of the World (3 cr)
Anth 230 World Prehistory (3 cr)
Anth 231 Introduction to Archaeology (3 cr)
Anth 251 Introduction to Physical Anthropology (3 cr)
Anth 410 Research Methods in Anthropology (3 cr)
Anth 420 Anthropological History and Theory (3 cr)
Anth 428 Social and Political Organization (3 cr)
Soc 101 Introduction to Sociology (3 cr)

One of the following (3 cr):
Anth 417 Social Data Analysis (3 cr)
Stat 251 Statistical Methods (3 cr)

One of the following (3 cr):
Anth 241 Intro to Study of Language (3 cr)
Anth 261 Language and Culture (3 cr)

Anthropology electives (upper-division) (15 cr)
Related fields as approved by the department (12 cr)

Courses to total 120 credits for this degree