

# General Curriculum Report #230

UNIVERSITY OF IDAHO - REGISTRAR'S OFFICE

January 16, 2004

## 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 Council 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 Council 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.

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### Adult, Counselor, and Technology Education

1. Add the following courses [**Effective:** Summer 2004]
  - AdOL **612 Doctoral Seminar II** (1 cr) The seminar is intended for those doctoral students who have completed all or most of their course work. The seminar will focus on how to be successful in taking the preliminary examination and how to develop a tentative dissertation proposal. Prereq: AdOL 591 and enrollment in a doctoral program. (Spring only)
  - AdOL **613 Doctoral Seminar III** (1 cr) The seminar is intended to support candidates who have had a successful defense of the dissertation proposal. The seminar will focus on the advancement of the dissertation, committee ship, completion and continuation of the research project and ultimately the defense of the dissertation. Prereq: AdOL 591 and 612, and enrollment in a doctoral program.
2. Change the number of the following course [**Effective:** Summer 2004]
  - AdOL **568668 Writing for Publication** (3 cr) (AdEd 568) Development of knowledge, skills, and potential of researchers and other writers desiring to prepare and publish manuscripts in education or other professional and trade journals; technical and theoretical aspects of writing for publication and the process of manuscript preparation, submission, and editing. Prereq: Enrollment in a doctoral program.
  - AdOL **589689 Critical Thinking** (2-3 cr) (AdEd 589) See EdAd 589689.

### Biological and Agricultural Engineering

Change the title, description, prerequisites and class meeting information of the following course [**Effective:** Summer 2004] BAE ID&WS461 ~~Agricultural Processing and Environment~~ **Bioprocess Engineering** (3 cr) WSU BSysE 461. Carries 2 credits after BAE 361 or ME 345. ~~Analysis and design of processing and environmental systems for the handling, processing, and storage of agricultural and biological materials.~~ Processing principles and transport processes applied to the analysis and design of handling, processing, and producing of biomaterials and bioprocesses. Two lec and one 3-hr lab a wk. Prereq: Math 310, Engr 320 and 335, or perm. (Spring only, alt/yr)

### Civil Engineering

1. Add the following courses [**Effective:** Spring 2005]

CE **526 Aquatic Habitat Modeling** (3 cr) The course objective is to learn the underlying principles of all components required for aquatic habitat modeling, to be able to perform such projects in riverine ecosystems including project design, data collection, data analysis and interpretation of the results and to learn the use of computational aquatic habitat models. Students will be working on their own modeling projects using the simulation model CASiMiR. Prereq: CE 325 or perm.
2. Add the following courses [**Effective:** Summer 2004]
  - CE **576 Highway Design and Traffic Safety** (3 cr) Geometric design of highways as related to operation and safety. Analysis of highway design alternatives and control strategies with respect to accident probabilities. Statistical models for safety analysis. Accident countermeasure selection and evaluation methodology. Risk management. Prereq: perm.
  - CE **578 Highway Traffic Operations** (3 cr) Theory of two-lane highway and freeway operations, application of traffic simulation models for the design and operations of highway, development and assessment of freeway management and control strategies including Intelligent Transportation Systems applications, field data collection and analysis. Prereq: perm. (Alt/yr)
  - GeoE **465 Excavation and Materials Handling** (3 cr) Principles of excavation design and handling of earth materials related to construction projects, quarries, and mines; blasting, excavation planning and scheduling,

- equipment selection and replacement, cost estimating, geographic information and management information systems. Computerized design using Gemcom and/or other appropriate software. Prereq: CE 211 or perm.
- GeoE **517 Tunnel Design and Construction** (3 cr) Geotechnical considerations for tunneling, drilling and blasting, TBM, ground support, haulage, ventilation, water handling, and trenchless technology. Application of analytical techniques such as the finite element method to design stable underground structures and support systems. Prereq: GeoE 407 or perm.
3. Change the credits, cross listing and description of the following course [**Effective:** Summer 2004]  
GeoE **407 Rock Mechanics** (3-4 cr) [See Min 401. Mechanical properties of rocks and rock masses; lab and insitu techniques to estimate strength, stress distribution, and deformation behavior in rock masses; application of analytical tools such as the finite element method to design stable excavations and support systems in rock.](#) Prereq: [Engr 350.](#)
  4. Change the cross listing of the following course [**Effective:** Summer 2004]  
GeoE **ID428 Geostatistics** (3 cr) Same as Stat ~~and Min~~ 428. WSU Geol and Stat 428. Applications of random variables and probability in geologic and engineering studies; regression, regionalized variables, spatial correlation, variograms, kriging, and simulation. Prereq: Stat 301 or equivalent.
  5. Change the description and prerequisites of the following course [**Effective:** Summer 2004]  
GeoE **436 Geological Engineering Analysis and Design** (3 cr) Geological engineering [analysis and design methods and projects](#), including [artificial data collection, stability analysis, and ground](#) reinforcement techniques; individual and teamwork approaches to formulating [on](#) and solving geological engineering problems. One 1-day field trip. Prereq: [GeoE 435](#) [CE 360 or grad standing.](#)
  6. Change the prerequisites of the following course [**Effective:** Summer 2004]  
CE **342 Theory of Structures** (3 cr) Stresses and strains in statically determinate and indeterminate beam, truss, and rigid frame structures; effects of moving loads; matrix displacement method. Two lec and one 3-hr lab a wk. Prereq: Engr 350, Math [275](#), 310, and Phys 211.
  7. Add cooperative status to the following courses [**Effective:** Summer 2004]
    - CE **ID&WS521 Sedimentation Engineering** (3 cr) [WSU CE 517.](#) Intro to river morphology and channel responses; fluvial processes of erosion, entrainment, transportation, and deposition of sediment. Prereq: CE 428 or perm.
    - CE **ID&WS556 Properties of Pavement Materials** (3 cr) [WSU CE 567.](#) Design of asphalt and portland cement concrete mixes; physical and mechanical properties; characterization methods; effects of aggregate and binder constituents; modification and upgrading techniques; laboratory and in-situ evaluation methods; applications of highway and airport materials. Three 1-hr lec a wk and variable number of lab hrs for demonstration. Prereq: CE 357 or equiv, or perm.
    - CE **ID&WS577 Pavement Management and Rehabilitation** (3 cr) [WSU CE 566.](#) Overview of Pavement Management Systems; PMS project and network levels; serviceability concepts and performance models; PMS data needs; rehabilitation and maintenance strategies; life cycle cost analysis; implementation of PMS in design, construction, maintenance, and research; examples of working PMS; maintenance and rehabilitation of asphalt and concrete pavements. Prereq: CE J475/J575 or equiv, or perm.
  8. Change the title and description of the following course [**Effective:** Summer 2004]  
CE **ID&WS572 ~~Applied~~Intersection Traffic Operations** (3 cr) WSU C E 501. Application of traffic simulation models to the design and operations of traffic facilities, including intersection, arterials, ~~and freeways~~; assessment [and design](#) of traffic signal timing strategies ~~and freeway management and control strategies~~. Prereq: perm. (Alt/hrs)
  9. Drop the following courses [**Effective:** Summer 2004]
    - GeoE **130 Engineering Analysis and Computations** (3 cr). See Min 130.
    - GeoE **203 (s) Workshop** (cr arr). Prereq: perm.
    - GeoE **204 (s) Special Topics** (cr arr). Prereq: perm.
    - GeoE **210 Introduction to Geological Engineering** (1 cr). Introduction to geological engineering testing, analysis, and design methods; data interpretation and problem solving using computers. One lec and one recitation a wk. Prereq: Geol 101 or 111, and Math 170.
    - GeoE **299 (s) Directed Study** (cr arr). Prereq: perm.
    - GeoE **309 Groundwater** (3 cr). See Geol 309.
    - GeoE **312 Geological Engineering Materials** (3 cr). Selected studies in mineralogy and petrology; engineering properties of soil, rock, and groundwater; introduction to site investigation and sampling. Three lec and one recitation a wk; one 1-day field trip. Prereq: Geol 101 or 111. Prereq or coreq: Engr 210.
    - GeoE **320 Blasting Engineering** (3 cr). See Min 304.
    - GeoE **ID344 Earthquakes and Seismic Hazards** (3 cr). See Geol 344.
    - GeoE **352 Cost Engineering and Management** (3 cr). See Min 352
    - GeoE **370 Auxiliary Operations in Excavation Industries** (3 cr). See Min 370.

- GeoE 372 **Subsurface Ventilation and Environmental Management** (3 cr). See Min 372.
- GeoE ID&WS435 **Geological Engineering Principles** (3 cr). WSU Geol 426. Use of geological information in engineering interpretation, analysis, and design; engineering stability analyses for excavations and slopes. One 1-day field trip. Prereq: Phys 211, and GeoE 312 or CE 360; or graduate standing.
- GeoE J464/J564 **Groundwater Seepage, Drainage, and Dewatering** (3 cr). Estimation of groundwater seepage for excavations, embankments, slopes, and tunnels; construction and use of flow nets; measurement and mapping of potentiometric surfaces; dewatering for construction and groundwater remediation. Additional project required for graduate credit. Prereq: GeoE 309 or 409 or 435 or CE 360.
- GeoE 475 **Mineral Deposits** (4 cr). See Geol 475.
- GeoE ID-J476/ID-J576 **Exploration Methods** (3 cr). See Geol J476/J576.
- GeoE 485 **Geochemical Exploration** (3 cr). See Geol 485.
- GeoE 507 **Rock Mechanics II** (3 cr). See Min 504.
- GeoE 523 **Environmental Geophysics** (3 cr). Applications of geophysical methods to hydrogeological and geotechnical problems.
- GeoE ID542 **Geomechanics** (3 cr). See Geol 542.
- GeoE ID546 **Fault Mechanics** (3 cr). See Geol 546.
- GeoE 564 **Groundwater Seepage, Drainage, and Dewatering** (3 cr). See GeoE J464/J564.
- GeoE ID576 **Exploration Methods** (3 cr). See Geol J476/J576.
- GeoE 580 **Design and Construction of Water Wells** (3 cr). See Hydr J475/J575.

10. Change the curricular requirements of **Civil Engineering** (B.S.C.E.) [Effective: Summer 2004]

To graduate in this program, a minimum grade of C must be earned in all engineering, mathematics, and science courses used to satisfy the curriculum.

Any student majoring in civil engineering may accumulate no more than 14 credits of D or F in mathematics, science, [technical elective](#), or engineering courses that are used to satisfy graduation requirements. Included in this number are multiple repeats of a single class or single repeats in multiple classes and courses transferred from other institutions. A warning will be issued in writing to students who have accumulated 7 credits of D or F in mathematics, science, [technical elective](#), or engineering classes used to satisfy curricular requirements.

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

Amst 301 or Phil 103 (3 cr)

CE 115 Introduction to Civil Engineering (2 cr)....

Two of the following (8-10 cr):

Biol 115 Cells and the Evolution of Life (4 cr)

Chem 112 Principles of Chemistry II (5 cr)

Chem 302/303 Principles of Physical Chemistry & Lab (4 cr)

Geol 111 Physical Geology for Science Majors (4 cr)

~~MMBB 250 General Microbiology (5 cr)~~

[MMBB 154, 155 Introductory Biology of Bacteria and Viruses and Lab \(4 cr\)](#)

Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)

Math 310 Ordinary Differential Equations (3 cr)

Phys 211 Engineering Physics I (3 cr)

Stat 301 Probability and Statistics (3 cr)

Technical electives. To ensure sufficient breadth, technical electives must include at least 9 cr from CE 421, 422, 431, 432, 441 or 444, 460, 473, 474, 475. Technical electives taken for breadth must be in at least two disciplines (i.e. 42x, 43x, 44x, 46x, or 47x). (12 cr)

Humanities and social sciences electives to satisfy UI core requirements listed in J-3.

The minimum number of credits for the degree is 128, excluding math below 170, English below 102, and any classes needed to remove deficiencies.

11. Add the **Geological Engineering** Minor [Effective: Summer 2004]

CE 360 Fundamentals of Geotechnical Engineering (4 cr)

CE 460 Geotechnical Engineering Design (3 cr)

Geol 111 Physical Geology for Science Majors (4 cr)

Geol 345 Structural Geology (3-4 cr)

Geol 422 Principles of Geophysics (3 cr)

GeoE 407 Rock Mechanics (3 cr)

GeoE 436 Geological Engineering Analysis and Design (3 cr)

Hydr 409 Quantitative Hydrogeology (3 cr)

Approved technical elective in the geotechnics area (3 cr)

## **Computer Science**

1. Add the following courses [**Effective:** Summer 2004]
  - **CS 120 Computer Science I** (4 cr) Fundamental programming constructs, Algorithms and problem-solving, Fundamental data structures, Overview of programming languages, Virtual machines, Introduction to language translation, Declarations and types, Abstraction mechanisms, Object-oriented programming. Three lec and one 2-hr lab a wk. Prereq: Math 108 or sufficiently high ACT, SAT, or Math Placement Test score to qualify for Math 143.
  - **CS 121 Computer Science II** (4 cr) Fundamental data structures, Recursion, Event-driven programming, Object-oriented programming, Basic algorithmic analysis, Algorithmic strategies, Foundations of human-computer interaction and graphics. Three lec and one 2-hr lab a wk. Prereq: CS 113 or 120, and Math 176.
  - **CS 150 Computer Organization and Architecture** (3 cr) Digital logic and digital systems, Machine level representation of data, Assembly level machine organization, Memory system organization and architecture, Interfacing and communication, Functional organization, Multiprocessing and alternative architectures. Prereq: CS 113 or 120.
  - **CS 210 Programming Languages** (3 cr) Major features of good programming languages, with primary emphasis on language features and their role in writing good software; programming language design alternatives; various types of languages, including procedure, data-flow, functional, and object-oriented languages. Prereq: CS 121 or 213.
  - **CS 240 Computer Operating Systems** (3 cr) Overview of operating systems, Operating system principles, Concurrency, Scheduling and dispatch, Memory management, Introduction to net-centric computing, Communication and networking, OS security. Prereq: CS 121 and 150, or CS 212 and 245.
  - **CS 270 System Software** (3 cr) Programming productivity tools such as make. Debugging tools. Linking and loading. Shell programming and scripting languages. Process management and interprocess communication. Concurrent programming using threads. Exception handling. Prereq: CS 121 or 213.
  - **CS 382 Software Engineering II** (3 cr) Continuation of CS 381, Individual projects are developed. Prereq: CS 381.
2. Change the prerequisites of the following course [**Effective:** Summer 2004]  
**CS 381 Software Engineering I** (3 cr) Current topics in development of software systems; software life cycle model, requirements definition, design, verification and validation, and project management techniques. Prereq: [CS 270](#) or perm.
3. Change the title and prerequisites of the following course [**Effective:** Summer 2004]  
**CS 481 ~~Design-Group Project~~ Senior Capstone Design** (4 cr) Application of formal design techniques to development of a large computer science project performed by students working in teams. Significant lab work reqd. Prereq: CS [382](#) or 480.
4. Change the number of the following courses [**Effective:** Summer 2004]
  - **CS ~~490~~385 Theory of Computation** (3 cr) See Math 385.
  - **CS ~~495~~395 Analysis of Algorithms** (3 cr) See Math 395.
5. Drop the following course [**Effective:** Summer 2004]
  - **CS 102 Computer Science Orientation** (1 cr). Introduction to the computer science profession and curriculum; fields of study available; curriculum planning; academic and professional ethics; introduction to available computing platforms and practice using them. Prereq or coreq: CS 112 or 113.  
**Recommended Substitution:** Waive
6. Drop the following course [**Effective:** Fall 2004]  
**CS 213 Data Structures** (3 cr). Intro to abstract data types, linear lists, linked lists, stacks, queues, graphs, and trees; methods for implementing, and algorithms for manipulating these types; dynamic memory methods; additional searching and sorting algorithms that result from using these data types; sequential file processing; application of these concepts in the lab to provide further experience in the program design process. Prereq: CS 113 and Math 176.  
**Recommended Substitution:** CS 121.
7. Drop the following course [**Effective:** Spring 2005]  
**CS 245 Computer Organization and Architecture** (4 cr). Register and processor level design of computer systems including the ALU and control unit; assemblers, linkage editors, loaders; evolution and classification of computer architectures; memory hierarchy, I/O interfaces; techniques for analyzing system performance. Prereq: CS 113 and Math 176.  
**Recommended Substitution:** CS 150.
8. Drop the following courses [**Effective:** Fall 2005]
  - **CS 113 Program Design and Algorithms** (3 cr). Further problem-solving and design methods used in computer science; problem definition and analysis; preliminary design methods, module analysis and refinement methods, cohesion, coupling, top down design; internal and external program documentation; intro to algorithm analysis, cost

and complexity concepts; discussion and comparison of several well-known algorithms for searching, sorting, text, and numeric processing. Lab work reqd. Prereq: CS 112 or equiv.

**Recommended Substitution:** CS 120.

- **CS 310 Computing Languages** (3 cr). Major features of good programming languages, with primary emphasis on language features and their role in writing good software; programming language design alternatives; various types of languages, including procedure, data-flow, functional, and object-oriented languages. Prereq: CS 213.

**Recommended Substitution:** CS 210.

- **CS 341 Computer Operating Systems** (4 cr). Analysis and design of methods used by operating systems to perform typical system services; design and implementation of file and directory systems; I/O methods, including programmed, interrupt-driven, and DMA; CPU scheduling; memory management techniques and implementations; concurrent programming; deadlocks; protection mechanisms; distributed systems; lab component focuses on implementation of several designs and algorithms discussed in lec. Three lec and one lab a wk. Prereq: CS 213 and 245.

**Recommended Substitution:** CS 240.

9. Drop the following course [**Effective:** Fall 2008]

- **CS 480 Design--Individual Project** (4 cr). Formal development techniques applied to definition, design, coding, testing, and documentation of a computer programming project; each student completes an individual project. Two lec a wk; significant lab work reqd. Prereq: Engl 317 and Sr standing in CS.

**Recommended Substitution:** CS 382.

10. Change the curricular requirements of **Computer Science** (B.S.C.S.) [**Effective:** Summer 2004]

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

[Biol 115 Cells and the Evolution of Life and Biol 116 Organisms and Environments, or Chem 111 Principles of Chemistry I and Chem 112 Principles of Chemistry II \(8-9 cr\)](#)

~~Comm 101 Fundamentals of Public Speaking (2 cr)~~

~~CS 102 Computer Science Orientation (1 cr)~~

~~CS 112 Introduction to Problem Solving and Programming (3 cr)~~

~~CS 113 Program Design and Algorithms (3 cr)~~

[CS 120 Computer Science I \(4 cr\)](#)

~~CS 213 Data Structures (3 cr)~~

[CS 121 Computer Science II \(4 cr\)](#)

~~CS 245 Computer Organization and Architecture (4 cr)~~

[CS 150 Computer Organization and Architecture \(3 cr\)](#)

[CS 210 Computing Languages \(3 cr\)](#)

[CS 240 Computer Operating Systems \(3 cr\)](#)

~~CS 270 System Software (3 cr)~~

~~CS 310 Computing Languages (3 cr)~~

~~CS 341 Computer Operating Systems (4 cr)~~

~~CS 360 Database Systems (3 cr)~~

[CS 381 Software Engineering I \(3 cr\)](#)

[CS 382 Software Engineering II \(3 cr\)](#)

CS 401 Contemporary Issues in Computer Science (1 cr)

~~CS 445 Systems Program Design (4 cr)~~

~~CS 480, 481 Design (8 cr)~~

[CS 490/385 Theory of Computation \(3 cr\)](#)

[CS 495/395 Analysis of Algorithms \(3 cr\)](#)

[CS 481 Senior Capstone Design \(4 cr\)](#)

Engl 317 Technical Writing (3 cr)

Math 170, 175 Analytic Geometry and Calculus I, II (8 cr)

Math 176 Discrete Mathematics (3 cr)

Math 330 Linear Algebra (3 cr)

Phys 211-212 Engineering Physics I-II (8 cr)

Stat 301 Probability and Statistics (3 cr)

~~Upper-division electives selected to satisfy the credit distribution in the following three categories (for categories B and C, Math 400, 404, 499, and 513-519 may not be included) (15 cr)~~

~~Category A—any upper-division CS course except 499 (6 cr)~~

~~Category B—Math 275 or any upper-division Math or Stat course (3 cr)~~

~~Category C—any upper-division CS, Math, or Stat, course, including no more than 3 cr in CS 499 (6 cr)~~

~~Science electives (4 cr)~~

~~Broadening electives (a list of acceptable courses is available from the CS Dept; these courses may include those used to satisfy the humanities/social science core requirements) (19 cr)~~

~~Electives to total 128 cr for the degree~~

[Upper-division technical electives selected to satisfy the credit distribution in these categories \(15 cr\):](#)

Computer Science (12 cr) – any upper-division CS course except 499. These advance courses must include one advanced sequence consisting of at least 6 credits.  
Mathematics (3 cr) – Math 275 or any upper-division Math or Stat course except Math 400, 404, 499, and 513-519.  
Science Electives (4 cr)

The minimum number of credits for the degree is 128, not counting Engl 101, Math 143, and other courses that might be required to remove deficiencies.

Students majoring in computer science must earn a grade of CB or better in CS 120, 121, and 150 and a C or better in Math 176 ~~each of the following courses~~ before registration is permitted in 200 level CS courses. Students majoring in computer science must earn a grade of C or better in CS 210, 240, 270, and Math 170, 175 and 176 before registration is permitted in upper-division ~~computer science~~CS courses: ~~CS 112, 113, 213, and 245, and Math 170, 175, and 176.~~

~~Technical and undesignated electives may be chosen from other disciplines to allow students to develop individualized programs to meet personal and career goals. A planned area of emphasis may be developed by the student with his or her advisor. This plan requires the approval of the CS faculty.~~

Students must consult with their advisors when selecting electives within the curriculum to insure that their career objectives are met.

11. Change the curricular requirements of the Computer Science Minor [**Effective:** Summer 2004]

~~CS 112 Introduction to Problem Solving and Programming (3 cr)~~

~~CS 113 Program Design and Algorithms (3 cr)~~

~~CS 213 Data Structures (3 cr)~~

CS 120 Computer Science I (4 cr)

CS 121 Computer Science II (4 cr)

CS 150 Computer Organization and Architecture (3 cr)

Math 176 Discrete Mathematics (3 cr)

~~Upper division electives in computer science (6 cr)~~

Elective courses (6 cr):

CS 210 Computing Languages (3 cr)

CS 240 Computer Operating Systems (3 cr)

CS 270 System Software (3 cr)

## **Education**

Change the number of the following courses [**Effective:** Summer 2004]

- ED ~~584684~~ **Intermediate Quantitative Analysis in Education** (3 cr) (ED 584) An in-depth analysis of quantitative research methods in social and behavioral sciences. The overall goal of the course is to prepare students to apply quantitative research methodology in education. Topics include understanding applied experimental, quasi-experimental and behavioral designs, survey design, measurement and instrumentation, sampling, item analysis, reliability analysis, and validity assessment. Prereq: ED 581 and ED 582, and enrollment in a doctoral program.
- ED ~~586686~~ **Advanced Planning and Design of Educational Research** (3 cr) (ED 586) Planning, analyzing, writing, and evaluating research studies appropriate for the dissertation; formulation of conceptual framework relative to analytical process; research designs and control of variables, and interpretation of data; preparation of research presentations and writing for publication. Prereq: ED 581, and ED 580 or 582 or 588, or perm., and enrollment in a doctoral program.
- ED ~~587687~~ **Advanced Quantitative Analysis in Education** (3 cr) (ED 587) Advanced analysis of quantitative research methods in education and social sciences. The goal of the course is to expose students to multivariate statistics and quantitative research approaches. Topics include multiple correlation/regression, discriminate analysis, exploratory and confirmatory factor analysis, multivariate analysis of variance (MANOVA), multivariate analysis of covariance (MANCOVA), canonical correlation analysis, cluster analysis, log linear model, path analysis and structural equation modeling. Prereq: ED 584 and 586, or perm., and enrollment in a doctoral program.
- ED ~~589689~~ **Designing and Conducting Qualitative Research** (3 cr) (ED 589) Examination of data collection and analysis process, role of literature critique, survey of computer applications, and ethical issues. Prereq: ED 588 or perm., and enrollment in a doctoral program.
- ED ~~590690~~ **Qualitative Research: Critiquing Frameworks, Practice, and Application** (3 cr) (ED 590) Advanced qualitative research issues: methodologies, interpretation, formats and perspectives for reporting/publication, application, and ethics. Prereq: ED 589 or perm., and enrollment in a doctoral program.

## **Electrical and Computer Engineering**

1. Add the following courses [**Effective:** Summer 2004]

- **ECE 423 Power Systems Analysis** (3 cr) Calculation of transmission line parameters, high frequency transmission line models, balanced and unbalanced faults, Zbus methods, transient generator models, stability analysis, and economic operation of power systems. Prereq: ECE 420.  
**Equivalent Course:** ECE 422.
  - **ECE 427 Power Electronics and Drives** (3 cr) Characteristics, limitations, and application of solid state power devices; induction machines; analysis and application of AC and DC drives; practical aspects of power electronic converter design, including rectifiers and inverters; choppers, AC phase control, device gating techniques, and snubbers. Prereq: ECE 420.  
**Equivalent Course:** EE 424.
  - **ECE 443 Distributed Processing and Control Networks** (3 cr) This course has three major parts: real-time computing, distributed processing, and control networks. Analysis of hardware and software performance with respect to speed, accuracy, and reliability. Investigation ways of maximizing the three essential processors resource, member, CPU Time, and Input/output. Methods for writing error free programs and designing fault tolerant computing systems. Prereq: ECE 340, 341, 350, and 351.
  - **ECE 557 Biological Signal Processing** (3 cr) Introduction to mathematical and computational modeling of signal processing mechanisms in biological organisms. The course is designed to serve an interdisciplinary audience of students from biological sciences, psychology, and engineering. Neurons and neuro models. Networks of neurons. Plasticity and learning models. Introduction to computational neuroscience. Recommended Preparation: Introductory course in linear algebra. Familiarity with at least one programming language. Prereq: Math 160 or 170, and perm. (Spring only, alt/yrs)
  - **ECE 560 Semiconductor Theory** (3 cr) Fundamental theory and behavior of modern semiconductor devices.
2. Change the title of the following courses [**Effective:** Summer 2004]
- **ECE 410 AnalogAdvanced Electronics** (3 cr) Introduction to analog integrated circuit implementation and design, differential and common-mode signal concepts, differential amplifiers, multistage amplifiers, operational amplifier design, frequency response of electronic circuits, feedback in electronic circuits, large-signal amplifiers. Prereq: ECE 310 and 311.
  - **ECE 411 AnalogAdvanced Electronics Laboratory** (1 cr) Lab to accompany or follow ECE 410. Prereq or coreq: ECE 410.
3. Drop the following courses [**Effective:** Summer 2004]
- **ECE 421 Introduction to Power Systems** (3 cr) Power and energy relationships in power systems, multiphase generators, lines and transformers; power system representation, network solution, and intro to symmetrical components. Prereq: ECE 320.  
**Recommended Substitution:** ECE 420
  - **ECE 422 Power Systems Analysis** (3 cr) Principles of power flow, fault and stability analysis; computer methods; load flow and econ dispatch. Prereq: ECE 421.  
**Recommended Substitution:** ECE 423
  - **ECE ID&WS424 Power Electronic Circuits** (3 cr) WSU E E 486. Characteristics, limitations, and application of solid-state power devices; transistors and thyristors as power switching devices, gating techniques, snubbers; switch-mode power supplies, AC phase control, choppers, rectifiers, inverters, resonant converters, and practical aspects of converter design. Prereq: ECE 310 and 320.  
**Recommended Substitution:** ECE 427
  - **ECE 550 Communication Theory** (3 cr) Advanced topics in modern data communication; data transmission systems; transmission impairments; Nyquist signaling; introduction to information theory; data and channel coding; partial response signaling; maximum likelihood sequence estimation; error rates; sub-optimum probabilistic detection; equalization; Trellis-coded modulation. Prereq: ECE 452 or perm.
4. Change the curricular requirements of **Computer Engineering** (B.S.Comp.E.) [**Effective:** Summer 2004]  
Required course work includes the university requirements (see regulation J-3) and:

AmSt 301 or Phil 103 (3 cr)  
 Comm 101 Fundamentals of Public Speaking (2 cr)  
~~CS 112 Introduction to Problem Solving and Programming (3 cr)~~  
~~CS 113 Program Design and Algorithms (3 cr)~~  
~~CS 213 Data Structures (3 cr)~~  
~~CS 245 Computer Organization and Architecture (4 cr)~~  
~~CS 341 Computer Operating Systems (4 cr)~~  
~~CS 381 Software Engineering (3 cr)~~  
CS 120 Computer Science I (4 cr)  
CS 121 Computer Science II (4 cr)  
CS 150 Computer Organization and Architecture (3 cr)  
CS 210 Computing Languages (3 cr)  
CS 240 Computer Operating Systems (3 cr)  
CS 270 System Software (3 cr)

ECE 101 Foundations of Electrical and Computer Engineering (2 cr)....  
Science elective selected from Chem 111, Ent 211, Geol 111, MMBB 154/155, or Phys 213 (4 cr)  
Humanities and social sciences electives to satisfy UI requirements listed in J-3.  
Technical electives selected from upper-division computer engineering, electrical engineering (~~except ECE 441~~), and computer science courses (~~42~~15 cr)

The minimum number of credits for the degree is 128, not counting Engl 101, Math 143, and other courses that might be required to remove deficiencies.

~~Students majoring in computer engineering must pass the EE certification examination as prerequisite to any upper-division course in computer and electrical engineering. A grade of C or better is required in each of the following courses before registration is permitted in upper-division computer science courses: CS 112, 113, 213, CS 245, Math 170, 175, 176. A grade of C or better is required in each of the following courses before registration is permitted in upper-division engineering courses: ECE 210, 212, 240, 241, Math 170, 175, 310, Phys 211, 212.~~

Students majoring in computer engineering must earn a grade of C or better in each of the following courses for graduation, and before registration is permitted in upper-division engineering courses: ECE 210, 212, 240, 241, Math 170, 175, 310, Phys 211, 212. Students majoring in computer engineering must earn a grade of B or better in CS 120, 121, 150, and a C or better in Math 176 for graduation and before registration is permitted in 200-level CS courses. Students majoring in computer engineering must earn a grade of C or better in CS 210, 240, 270, and Math 170, 175, 176 for graduation and before registration is permitted in upper-division CS courses.

## **Engineering**

Change the prerequisites of the following course [**Effective:** Summer 2004]

Engr **ID&WS350 Engineering Mechanics of Materials** (3 cr) WSU C E 215. Elasticity, strength, and modes of failure of engineering materials; theory of stresses and strains for ties, shafts, beams, and columns. Prereq: Engr 210, Math ~~275~~175. Coreq: Math 310.

## **Environmental Science**

1. Drop the following courses [**Effective:** Summer 2004]

- EnvS **WS210 Microcomputer Models of Environmental Systems** (3 cr). WSU ES/RP 210.  
**Recommended Substitution:**
- EnvS **WS528 Pollution Prevention** (3 cr). WSU ES/RP 428. Introduction to practical tools necessary for completing on-site waste audits.  
**Recommended Substitution:** EnvS 428.

2. Change the curricular requirements of **Environmental Science** (B.S.Env.S.) [**Effective:** Summer 2004]

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

Biol 115 Cells and the Evolution of Life (4 cr)

Chem 111 Principles of Chemistry I (students in social science option may substitute Chem 101) (4 cr)

Comm 101 Fundamentals of Public Speaking or 3-4 cr in foreign language courses (2-4 cr)

~~Engl 317 Technical Writing (3 cr)~~

EnvS 101 Introduction to Environmental Science (3 cr)

EnvS 102 Field Activities in Environmental Sciences (1 cr)

EnvS 225 International Environmental Issues Seminar (3 cr)

EnvS 400 Seminar (1 cr)

EnvS 497 Senior Research and Thesis (3 cr)

Phil 452 Environmental Philosophy (3 cr)

Stat 251 Principles of Statistics (3 cr)

Advisor-directed breadth electives, incl at least one course from the first four areas (24 cr):....

### Technical

Biol 213 Principles of Biological Structure and Function (4 cr)

Chem 253 Quantitative Analysis (5 cr)

Chem 275 Carbon Compounds or Chem 277 and 372 Organic Chemistry (3 cr)

Chem 302 Principles of Physical Chem or Chem 305-306 Physical Chem (3 cr)

Chem 303 Principles of Physical Chem Lab (1 cr)

Chem 418 Environmental Chemistry (3 cr)

EnvS 428 Pollution Prevention (3 cr)

EnvS 429 Environmental Audit (3 cr)

~~EnvS WS210 Microcomputer Models of Environmental Systems (3 cr)~~

~~EnvS R471 Waste Treatment Technologies (3 cr)~~

EnvS 479 Introduction to Environmental Regulation (3 cr)....  
And one the following options:

### A. Biological Science Option

This option is suitable for students wishing to pursue technically oriented careers in environmental professions such as natural resource management, bioremediation, and environmental impact analysis.

Chem 112 Principles of Chemistry II (5 cr)

[Engl 317 Technical Writing \(3 cr\)](#)

Geog 100 Physical Geography or Geol 101 Physical Geology (4 cr)

Math 170 Analytic Geometry and Calculus I or 160 Survey of Calculus (4 cr)

MMBB 250 General Microbiology (5 cr)

Advisor-approved depth electives – include all the courses from at least two of the following areas (20 cr):....

#### Forest and Range Systems

Take 4 of the [57](#) courses listed below:

For 330 Forest Ecosystem Processes (3 cr)

[For 423 Forest Community Ecology \(1 cr\)](#)

For 426 Wildlife Fire Management and Ecology (3 cr)

For 429 Landscape Ecology (2 cr)

~~For 465 Forest Protection (2 cr)~~

Rnge 357 Rangeland and Riparian Habitat Assessment (3 cr)

[Rnge 440 Wildland Restoration Ecology \(3 cr\)](#)

[Rnge 459 Rangeland Ecology \(3 cr\)](#)

#### Soils

Soil 437 Soil Biology (3 cr)

Soil 438 Pesticides in the Environment (3 cr)

Soil 446 Soil Fertility (1-3 cr, max 3)....

Electives to total 128 credits for the degree

### B. Physical Science Option

This option is suitable for students wishing to pursue technical careers in environmental professions such as air, soil, and water pollution abatement, hazardous waste management, waste minimization, and ecological restoration.

Chem 112 Principles of Chemistry II (5 cr)

[Engl 317 Technical Writing \(3 cr\)](#)

Geog 100 Physical Geography (4 cr)

Geol 101 Physical Geology (4 cr)

Math 170 Analytic Geometry and Calculus I or 160 Survey of Calculus (4 cr)

Advisor-approved depth electives – meet requirements of at least two of the following areas (20 cr):....

#### Geology

Take at least 4 of the 5 courses listed below:

Geol 335 Geomorphology (3 cr)

Geol 360 Geologic Hazards (3 cr)

[Geol 421 Environmental Geophysics \(3 cr\)](#)

Geol 423 Principles of Geochemistry (3 cr)

Geol 464 The Geochemistry of Natural Waters (3 cr)

~~Geop 422 Principles of General Geophysics (3 cr)~~

#### Statistics

GeoE 428 Geostatistics (3 cr)

Stat 401 Statistical Analysis (3 cr)

Stat 422 Sample Survey Methods (3 cr)....

Electives to total 128 credits for the degree

### C. Social Science Option

This option is suitable for students wishing to pursue careers in environmental professions such as environmental regulation, land use planning, environmental administration, and as a pre-law program for environmental law.

[Engl 309 Advanced Prose Writing or Jamm 428 Environmental Journalism \(3 cr\)](#)

[Engl 316 Environmental Writing or Engl 317 Technical Writing \(3 cr\)](#)

Geog 100 Physical Geography (4 cr)

Geol 101 Physical Geology (4 cr)

Math 137 Algebra with Applications or 143 Pre-calculus Algebra and Analytic Geom (3 cr)

PolS 235 Political Research Methods and Approaches or Hist 290 The Historian's Craft or Phil 201 Critical Thinking (3 cr)

Advisor-approved depth electives chosen from the following ~~(20 cr)~~, incl five courses from one of the following areas:

Business and Economics

- ~~AgEc 451 Land and Natural Resource Economics (3 cr)~~
- ~~Bus 314 World of Corporate Business (3 cr)~~
- ~~Econ 385 Environmental Economics (3 cr)~~
- ~~For 383 Economics for Natural Resource Managers (3 cr)~~
- ~~RRT 383 Resource Economics for Environmental Policymaking (3 cr)~~

Conflict Resolution/Communication

- ~~Comm 331 Conflict Management (3 cr)~~
- ~~Comm 332 Communication and the Small Group (3 cr)~~
- ~~RRT 486 Public Involvement in Natural Resource Mgt (3 cr)~~
- ~~RRT 494 Public Relations for Natural Resources Professionals (3 cr)~~

Conservation Heritage

- Anth 422 Plateau Indians (3 cr)
- Engl 473 Literature of the American West (3 cr)
- Engl 484 American Indian Literature (3 cr)
- Geog 364 Idaho and the Pacific Northwest (3 cr)
- Geog 420 Land, Resources, and Environment (3 cr)
- Hist 422 The American Landscape (3 cr)
- Hist 424 American Environmental History (3 cr)
- Hist 428 History of the American West (3 cr)
- LArc 480 Issues for the Emerging Landscape (3 cr)
- RRT 489 Personalities and Philosophies in Conservation (2 cr)

History

- ~~Hist 423 Idaho and the Pacific Northwest (3 cr)~~
- ~~Hist 424 American Environmental History (3 cr)~~
- ~~Hist 428 History of the American West (3 cr)~~

Law

- ~~Phil 434 Philosophy of Law (3 cr)~~
- ~~PolS 452 Administrative Law and Regulation (3 cr)~~
- ~~PolS 461 Western Environmental Legal History (3 cr)~~
- ~~WLF 493 Environmental Law (2 cr)~~
- EnvS 479 Introduction to Environmental Regulations (3 cr)
- Geog 420 Land, Resources, and Environment (3 cr)
- Law 937 Natural Resources Law and Legal History (3 cr)
- Law 947 Environmental Law (3 cr)
- Law 948 Public Land Law (3 cr)
- Phil 470 Philosophy of Law (3 cr)
- Phil 571 Ecological Jurisprudence (3 cr)
- PolS 464 Politics of the Environment (3 cr)
- PolS 467 Constitutional Law (3 cr)
- PolS 468 Civil Liberties (3 cr)

Literature

- ~~Engl 473 Literature of the American West (3 cr)~~
- ~~RRT 489 Personalities and Philosophies in Conservation (2 cr)~~

Planning and Policy

- ~~Fish/For/ForP/Rngo/RRT/WLF 470 Interdisciplinary Natural Resource Planning (3 cr)~~
- ~~For 484 Forest Policy and Administration (2 cr)~~
- ~~Geog 360 Population Dynamics and Distribution (3-4 cr)~~
- ~~Geog 420 Land, Resources, and Environment (3 cr)~~
- ~~Geog 427 Decision-Making in Resource Management (3 cr)~~
- ~~Geog WS444 Environmental Assessment (4 cr)~~
- ~~LArc 480 Issues for the Emerging Landscape (3 cr)~~
- ~~PolS 439 Public Policy (3 cr)~~
- ~~PolS 462 Natural Resource Policy (3 cr)~~

Policy and Planning

- Comm 331 Conflict Management (3 cr)
- Econ 385 Environmental Economics (3 cr)
- For 484 Forest Policy and Administration (2 cr)
- Geog 444 Environmental Assessment (4 cr)
- PolS 451 Public Administration (3 cr)
- PolS 454 Public Organization Theory (3 cr)
- PolS 462 Natural Resource Policy (3 cr)
- PolS 464 Politics of the Environment (3 cr)
- Psyc 316 Industrial/Organizational Psychology (3 cr)

[RRT 383 Resource Economics for Environmental Policymaking \(3 cr\)](#)

[RRT 385 Conservation Management and Planning I \(3 cr\)](#)

[RRT 387 Environmental Communication Skills \(3 cr\)](#)

[RRT 494 Public Relations for Natural Resources Professionals \(3 cr\)](#)

[Science Writing](#)

[Engl 309 Advanced Prose Writing \(3 cr\)](#)

[Jamm 425 Feature Article Writing \(3 cr\)](#)

[Jamm 428 Environmental Journalism \(3 cr\)](#)

Electives to total 128 credits for the degree

### **Fish and Wildlife Resources**

1. Add the following course [**Effective:** Summer 2004]  
Fish **435 Wetland Ecology and Management** (3 cr) Same as Range 435. Worldwide distribution of wetlands; wetland types and functions: interactions among biota, soils and water that govern the ecology of wetlands with an emphasis on wetland vegetation and wildlife; impacts of agricultural and forestry practices; management and restoration techniques. Two required field trips. Prereq: Biol 213, Biol 341, For 221, or For 320. (Fall only, alt/yrs)
2. Remove the cooperative status of the following course [**Effective:** Summer 2004]  
WLF **ID&WS440 Conservation Biology** (3 cr) ~~WSU NATRS 450.~~ Patterns of biological diversity; factors producing changes in diversity; values of diversity; management principles applied to small populations, protected areas, landscape linkages, biotic integrity, restoration, legal issues, and funding sources. Prereq: For/Rnge 221 or Biol 314 or perm. (~~WJ, Spring only~~) (~~WSU, Fall only~~).
3. Change the credits of the following course [**Effective:** Summer 2004]  
WLF **545 Wildlife Habitat Ecology** (2-3 cr) Reading and discussion on synecological relationships of wildlife habitats. Two days of field trips. Prereq: WLF 492 or perm, animal and plant ecology. (Spring only, alt/yrs)
4. Change the curricular requirements of **Fishery Resources** (B.S.Fish.Res.) [**Effective:** Summer 2004]  
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-prefixed upper-division courses and to graduate with a B.S.Fish.Res.: Biol 116 and 213, Stat 251, and For/Rnge 221.

To graduate, students must achieve a grade of C or better in each fish- and wildlife-prefixed 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:....

#### **Summer Session**

[Fish/WLF/For/ForP/Rnge/RRT 302 Wildland Field Ecology \(2 cr\)](#)

#### **Third and Fourth Years**

AVS 371 Anatomy and Physiology or Biol 423 Comparative Vertebrate Physiology (4 cr)

Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)

Fish 314 Fish Ecology (3 cr)

Fish 316 Principles of Population Dynamics (2 cr)

[Fish/Biol 411/481 Ichthyology \(4 cr\)](#)

Fish 415 Limnology (4 cr)

Fish 418 Fisheries Management (4 cr)

Fish 422 Concepts in Aquaculture or Fish 424 Fish Health Management (3 cr)

Fish/WLF/For/ForP/Rnge/RRT 470 Interdisciplinary Natural Resource Planning (3 cr)

Fish 495 Seminar (1 cr)

[Gene 314 General Genetics or Biol 210 Genetics \(4 cr\)](#)

MMBB 250 General Microbiology (5 cr)

WLF 448 Fish and Wildlife Population Ecology (4 cr)

~~Restricted electives selected from the following courses — (13 cr)~~

~~[AgEc 391 Agribusiness Mgt \(suggested for students interested in aquaculture\) \(3 cr\)](#)~~

~~[AVS 305 Animal Nutrition \(4 cr\)](#)~~

~~[Biol 484 Invertebrate Zoology \(4 cr\)](#)~~

~~[Bus 321 Marketing \(suggested for students interested in aquaculture\) \(3 cr\)](#)~~

~~[Ent 472 Aquatic Entomology \(3 cr\)](#)~~

~~[Fish 422 Aquaculture \(if not taken above\) \(3 cr\)](#)~~

~~[Fish 424 Fish Health Management \(if not taken above\) \(3 cr\)](#)~~

~~[Fish/Rnge 430 Riparian Ecology and Management \(2 cr\)](#)~~

~~[For 462 Watershed Science and Management \(3 cr\)](#)~~

~~Gene 314 General Genetics or Biol 210 Genetics (4 cr)~~  
~~MMBB 300 Survey of Biochemistry (3 cr)~~  
~~WLF 314 Wildlife Ecology I (3 cr)~~  
~~WLF 315 Wildlife Ecology I Laboratory (1 cr)~~  
~~WLF 316 Wildlife Ecology II (4 cr)~~  
~~WLF 440 Conservation Biology (3 cr)~~

Approved work experience in major field required

Electives to total 128 credits for the degree

5. Change the curricular requirements of **Wildlife Resources** (B.S.Wildl.Res.) [**Effective:** Summer 2004]  
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 116 and 213, Stat 251, and For/Rnge 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:....

#### **Summer Session**

~~Fish/WLF/For/ForP/Rnge/RRT 302 Wildland Field Ecology (2 cr)~~

#### **Third and Fourth Years**

~~ASM 240 Computer Applications in Biological Systems, Geog 385 GIS Primer, or LArc 385 GIS Primer (3 cr)~~

AVS 371 Anatomy and Physiology (4 cr)

Engl 208 Personal and Exploratory Writing, Engl 317 Technical Writing, or Comm 431 Professional Presentation Techniques (3 cr)

For 383 Economics for Natural Resource Managers, AgEc 451 Land and Natural Resource Economics, or Econ 385 Environmental Economics (3 cr)

Gene 314 General Genetics or Biol 210 Genetics (3-4 cr)

Phys 100 Fundamentals of Physics or Phys 111 General Physics I (4 cr)

WLF 314, 315 Wildlife Ecology I and Lab (4 cr)

WLF 316 Wildlife Ecology II (4 cr)

WLF 440 Conservation Biology (3 cr)

WLF 448 Fish and Wildlife Population Ecology (4 cr)

WLF/For 470 Interdisciplinary Natural Resource Planning (3 cr)

WLF 492 Wildlife Management (4 cr)

WLF 495 Wildlife Seminar (1 cr)

Restricted electives, choose two courses from the following (must receive a grade of C or better):

Biol 483 Mammalogy (3 cr)

Biol 484 Invertebrate Zoology (4 cr)

~~Fish 411~~/Biol 481 Ichthyology (4 cr)

WLF 482 Ornithology (4 cr)

Approved work experience in major field required

Electives to total 128 credits for the degree

#### **Forest Products**

1. Add the following course [**Effective:** Summer 2004]  
ForP **439 Operational Analysis in Timber Harvesting** (3 cr) Address contemporary issues associated with timber harvesting; harvesting production and cost analysis, soil compaction, residual stand damage, landslides related to road construction, optimization in forest transportation, forest biomass energy, and quality control in timber harvesting. Recommended Preparation: Work experience with public agencies and private companies. Prereq: ForP 430 or perm. (Spring only, alt/yrs)
2. Change the title, credits and description of the following course [**Effective:** Summer 2004]  
ForP **230 Forest Land Harvesting Field Measurements I** (4 cr) ~~Distance, precision, and allowable error; slope and horizontal distance concepts; field book; pacing, chaining, and taping; direction measurements with hand-held and staff compasses; declination and area calculation; traversing and traverse closure. Evaluation and quantification of harvesting impacts on forest systems; public land surveying, land measurements, resource impact measurements and evaluation.~~  
Two lec and one 3-hr lab a wk for ~~5~~10 wks. Prereq: Math 143 or equiv. (Fall only)
3. Change the prerequisites of the following course [**Effective:** Summer 2004]

ForP **ID434 Cable Systems Analysis** (3 cr) WSU NATRS 434. Layout, planning, and design for cable logging systems; analysis of forces involved in cable logging; crew and terrain requirements; layout and design project; cost and equipment analysis. Three 1-day field trips. Prereq: [Phys 111 or 211, and](#) ForP 430 or equiv. (Spring, Alt/Yrs)

4. Drop the following courses [**Effective:** Summer 2004]

- ForP **231 Forest Land Measurements II** (1 cr). Vertical distance concepts; traverse closure software; contour mapping and mapping software; triangulation applications; public land surveying and the application and use of levels, theodolites, transits, and other tripod instruments. Two lec and one 3-hr lab a wk for 5 wks. Prereq: ForP 230. (Fall only)
- ForP **232 Forest Land Measurements III** (1 cr). Advanced use and application of instruments including electronic distance measurement and global positioning systems; stadia; curve geometry and layout; coordinate system; road plan and profile. Two lec and one 3-hr lab a wk for 5 wks. Prereq: ForP 231. (Fall only)
- ForP **250 Principles of Forest Products** (2 cr). Wood in our society, effect of silviculture on wood properties, harvesting and transportation, wood manufacturing technologies, wood products and applications, and future directions in the wood industry. One or two optional half-day field trips. (Spring only).
- ForP **420 Pulp and Paper Technology** (3 cr). Technological overview of chemical and physical processes involved in conversion of wood into paper. Two or three optional half-day field trips. Prereq: organic chemistry or perm.
- ForP **463 Pulp and Paper Process Lab** (2 cr; see headnote). Chemical and mechanical pulping, pulp preparation, secondary fiber, de-inking, wet end additives; lab problems and exercises supplemented by lec. One lec and one hr of lab a wk.
- ForP **464 Pulp and Paper Process Calculations** (2.7 cr; see headnote). Chemical and physical process calculations; steady and unsteady state material and energy balances applied to pulping and papermaking processes.
- ForP **465 Pulp and Paper Process Operations** (2.7 cr; see headnote). Application of principles of momentum, heat, and mass transfer to unit operations in pulp and paper industry; fluid transport; filtration; sheet forming, sedimentation, heat exchange, evaporation, gas absorption and stripping; distillation, leaching extraction, crystallization, humidification, and drying.
- ForP **469 Surface and Colloid Chemistry of Papermaking** (2 cr; see headnote). Principles of surface and colloid chemistry applied to basic problems in pulp and paper manufacturing operations and products uses.
- ForP **471 Pulp and Paper Process Dynamics and Control** (2 cr; see headnote). Theory and practice of process control in the pulp and paper industry: sensors, control equipment and algorithms, final cost elements; applications to industrial pulp and paper manufacturing, available hardware and software.
- ForP **472 Biological and Environmental Science of Pulp and Paper** (2 cr; see headnote). Biology and chemistry of the pulp and paper processes are related to their impacts on the environment; treatment of process effluents and discharges, government regulations and industry compliance; theory, design, and operation of equipment for the treatment or prevention of environmental impact.

5. Change the curricular requirements of **Forest Products Timber Harvesting Option** (B.S.For.Prod.) [**Effective:** Summer 2004]

Chem 101 Introduction to Chemistry I (4 cr)

Comm 101 Fundamentals of Public Speaking (2 cr)

Econ 202 Principles of Economics (3 cr)

Engl 102 College Writing and Rhetoric (3 cr)

Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)

For/Rnge/WLF 221 Natural Resources Ecology (3 cr)

For/RRT 235 Society and Natural Resources (3 cr)

~~For 270 Principles of Forest Ecosystem Management (2 cr)~~

For 274 Forest Measurement Techniques (1 cr)

For 394 Quantitative Resource Analysis (3 cr)

For 474 Forest Inventory (3 cr)

ForP 100 Forest Products Issues and Industries (1 cr)

ForP 230, ~~231, 232~~ Forest ~~Land~~ ~~Harvesting Field~~ Measurements (~~3~~ 2 cr)

~~ForP 250 Principles of Forest Products (2 cr)~~

ForP 277 Wood Structure and Identification (3 cr)....

~~Phys 211 Engineering Physic 1 (4 cr)~~

Stat 251 Principles of Statistics (3 cr)

~~Two of the following (4-6 cr):~~

~~Fish/WLF 290 Fish and Wildlife Ecology, Management, and Conservation or Fish 314 Fish Ecology or Fish/Rnge 430 Riparian Ecology and Management (3 cr)~~

~~Rnge 251 Principles of Range Resources Management (2 cr)~~

~~RRT 287 Foundations of Conservation Leadership and Management or RRT 487 Environmental Education (2-3 cr)~~

And one of the following emphasis areas:

**Technical Emphasis**

AgE 351 Hydrology (3 cr)

~~Biol 102 Biology and Society (4 cr)~~

CE 316 Advanced and Route Surveys or ~~Geog/LArc 385 GIS Primer~~ For 375 Airphoto Interpretation and Mapping (3 cr)  
 Engr 210 Engineering Statics (3 cr)  
 Engr 220 Engineering Dynamics (3 cr)  
 Math 170, 175 Analytic Geometry and Calculus I, II (8 cr)  
~~Phys 211, 212 Engineering Physics I-II (6 cr)~~  
 Electives to total 128 cr for the degree

**Resource Emphasis**

Biol 115 Cells and the Evolution of Life (4 cr)  
~~Biol 203 General Botany (4 cr)~~  
 For 320 Dendrology (3 cr)  
 For 324, 424 Silviculture I-II (4 cr)  
 For 462 Watershed Management (2 cr)  
~~ForP 365 Wood Building Technology (3 cr)~~  
~~Geog/LArc 385 GIS Primer (3 cr)~~  
For 375 Airphoto Interpretation and Mapping (3 cr)  
 Math 160 Survey of Calculus or Math 170 Analytic Geom and Calculus I (4 cr)  
 Electives to total 128 cr for the degree

6. Add the **Timber Harvesting** Minor [**Effective:** Summer 2004]  
 ForP 230 Forest Harvesting Field Measurements (2 cr)  
 ForP 277 Wood Structure and Identification (3 cr)  
 ForP 430 Forest Engineering and Harvesting (3 cr)  
 Four of the following (12 cr)  
     ForP 431 Production and Cost Control in Forest Industry (3 cr)  
     ForP 432 Low Volume Forest Roads (3 cr)  
     ForP 433 Forest Tractor System Analysis (3 cr)  
     ForP 434 Cable Systems Analysis (3 cr)  
     ForP 439 Operational Analysis in Timber Harvesting (3 cr)  
     ForP 444 Lumber Manufacturing (3 cr)
  
7. Change the curricular requirements of **Forest Products Wood Construction and Design Option** (B.S.For.Prod.) [**Effective:** Summer 2004]  
 Acct 202 Introduction to Managerial Accounting (3 cr)  
 Arch 156 Graphic Communication (2 cr)  
 Arch 255 Advanced Architectural Graphics (3 cr)  
 Arch 256 Basic Architectural Design (3 cr)  
 Arch 266 Materials and Methods (3 cr)  
~~Arch 284 Computer Applications in Architecture I (2 cr)~~  
 Arch 366 Building Technology I (3 cr)  
 Arch 463-464 Environmental Control Systems (8 cr)  
 Arch 475 Professional Practice I (3 cr)  
~~Arch 499 DS: Wood Construct/Design (design project) (2 cr)~~  
 BLaw 265 Legal Environment of Business (3 cr)  
 Comm 101 Fundamentals of Public Speaking (2 cr)  
 Econ 202 Principles of Economics (3 cr)  
 Engl 102 College Writing and Rhetoric (3 cr)  
 Engl 313 Business Writing or Engl 317 Technical Writing (3 cr)  
 For 235 Society and Natural Resources (3 cr)  
 ForP 100 Forest Products Issues and Industries (1 cr)  
~~ForP 250 Principles of Forest Products (2 cr)~~  
 ForP 277 Wood Structure and Identification (3 cr)  
 ForP 337 Physical and Mechanical Properties of Wood (3 cr)  
 ForP 365 Wood Building Technology (3 cr)  
 ForP 436 Wood Composites (3 cr)  
 ForP 437 Wood as a Structural Material (2 cr)  
 ForP 444 Lumber Manufacturing (3 cr)  
 ForP 450 Wood Deterioration and Preservation (2 cr)  
~~ForP 480 Senior Project (2 cr)~~  
ForP 490 Biomaterial Product and Process Development (2 cr)  
ForP 491 Biomaterial Product and Process Development Lab (1 cr)  
 LArc 383 Architectural Site Design (3 cr)  
 Math 160 Survey of Calculus (4 cr)  
 NR 101 Exploring Natural Resources (1 cr)  
 Phys 111 General Physics I (4 cr)  
 Stat 251 Principles of Statistics (3 cr)

Vtd 344 Computer-Aided Design (2 cr)

And one of the following emphasis areas:....

**Forest Resources**

1. Change the title, description and prerequisites of the following course [**Effective:** Summer 2004]  
 For ~~424 Silviculture II~~ **Forest Dynamics and Management** (2 cr) ~~Integrated M~~ methods and techniques for ~~manipulation of forest ecosystems to meet management objectives; intermediate stand tending; forest health, landscape silviculture, and prescription writing.~~ sustainable management of forest ecosystems including, stand and disturbance dynamics, exercises in forest assessment, forest modeling and communicating management guidelines. One lec and one 4-hr lab a wk. Prereq: For ~~324 or perm330,~~ and Bot 341 or For 320.
  
2. Change the description, prerequisites and class meeting information of the following course [**Effective:** Summer 2004]  
 For **474 Forest Inventory** (3 cr) Principles ~~of cruise design and implementation for timber and other products; growth and yield, fixed plot, and 3P sampling,~~ and practice of natural resources dynamics and forest growth and yield simulation, applied mathematical programming techniques, quantitative decision support. Two lec and 2 hrs of lab a wk. Prereq: For 274, 394, Stat 251 and perm.
  
3. Change the grading of the following course [**Effective:** Summer 2004]  
 For **594 Analysis of Correlated Data** (3 cr) Same as Stat 594. Theory and application of statistical tools to data of intricate correlation structures, such as are commonly found in natural resources. Coverage will include mixed-effects linear models and either nonlinear models or geostatistical techniques, depending on student interests. Use of R and Splus for data analysis. Graded P/F. Prereq: Stat 401. (Spring only)
  
4. Change the curricular requirements of **Fire Ecology and Management** Minor [**Effective:** Summer 2004]  
 For/Rnge/WLF 221 Natural Resources Ecology (3 cr)  
For 274 Forest Measurement and Inventory or Rnge 357 Rangeland and Riparian Habitat Assessment (3 cr)  
 For 426 Wildland Fire Management and Ecology (3 cr)  
 For 427 Prescribed Burning Laboratory (2 cr)  
~~Geog 301 Meteorology or Geog 401 Climatology (3 cr)~~  
 One or more of the following (2-3 cr):  
 For 330 Forest Ecosystem Processes (3 cr)  
 For 424 Silviculture II (2 cr)  
 For 429 Landscape Ecology (2 cr)  
 For 476 Forestry Project Evaluation (3 cr)  
 For 484 Forest Policy and Administration (2 cr)  
 ForP 430 Forest Engineering and Harvesting (3 cr)  
 Rnge 354 Wildland Vegetation Management and Restoration (3 cr)  
 Rnge 459 Rangeland Ecology (3 cr)  
 RRT 490 Wilderness and Protected Area Management (3 cr)  
 WLF 445 Nongame Management (2 cr)  
 WLF 492 Wildlife Management (4 cr)  
One of the following courses (3 cr):  
Geog 301 Meteorology (3 cr)  
Geog 401 Climatology (3 cr)  
 One of the following courses (1-3 cr):  
 Geog 385 GIS Primer (3 cr)  
 Geog 475 Geographic Information Systems (3 cr)  
 NR 402 GIS Applications in Natural Resources (1 cr)  
 To complete this minor, students must complete a minimum of 18 credits from the list above.

**Health, Physical Education, Recreation, and Dance**

1. Reactivate the following dropped course, and change the credits and description [**Effective:** Summer 2004]  
 Rec **258 Survival Skills** (~~2-3~~ cr) Instruction, ~~analysis,~~ and practice of short-~~and long-~~ term survival skills; developing students awareness ~~of needs and values of survival training,~~ attitudes, and skills. Field trip required.
  
2. Change the credits of the following course [**Effective:** Summer 2004]  
 PEP **484 (s) Internship in Physical Education Teaching** (~~1-~~15 cr) Guided observation, supervised instruction, and comprehensive team and independent teaching in school settings. Students will be following the school district full semester calendar. Graded P/F. Prereq: ED 302 and division approval. Coreq: ED 401.

## Journalism and Mass Media

1. Change the curricular requirements of the School of Journalism and Mass Media [**Effective:** Summer 2004]  
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 and Information Gathering (3 cr)  
Jamm 442 Media Law and Ethics (3 cr)  
Jamm 445 History of Mass Media (3 cr)

Two of the following courses:

Jamm 340 Cultural Diversity and the Media (3 cr)  
Jamm 377 Documentary (3 cr)  
Jamm 378 American Television Genres (3 cr)  
Jamm 440 Culture and Mass Media (3 cr)  
Jamm 443 Media Management and Economics (3 cr)  
Jamm 444 Mass Media and Public Opinion (3 cr)  
Jamm 449 Media Criticism (3 cr)  
Jamm 490 Global Media (3 cr)

~~Fifteen~~**Nine** credits of electives in Journalism and Mass Media (~~nine~~**three** of which must be upper ~~level~~**division** credits)

Note: Jamm 100 and 121 must be completed with a grade of C or better before a major may enroll in any other Journalism and Mass Media courses.)....

Majors cannot apply more than ~~48~~**42** hours of courses in Journalism and Mass Media toward the 128-credit degree requirement and are required to take no fewer than 65 hours in the liberal arts and sciences.

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

## Landscape Architecture

1. Add the following courses [**Effective:** Summer 2004]
  - **LArc 246 Landscape Graphics II** (2 cr) Application of computer-based graphic technologies to the preparation of landscape architecture presentations in both plan, section/elevation and perspective rendering. Prereq: LArc major, LArc minor, LArc 245, or perm. (Fall only)
  - **LArc 269 Landscape Construction II** (2 cr) Storm water management, grading swales, calculating runoff, sizing conveyance and detention basins. Prereq: LArc 268.
  - **LArc 357 Landscape Architecture II** (3 cr) Intermediate site planning and design problems that emphasize the analysis, development and presentation for urban, rural and regional housing and open space planning projects; introduction of senior case study. Selected field trips at student expense. Recommended Preparation: LArc 288, 289. Prereq: LArc 210, 245, 246, 260, 268, 269, and 356, or perm. (Fall only)
  - **LArc 362 Landscape Architecture III** (3 cr) Intermediate scale land planning and design problems that emphasize sustainable development practice with a focus on landscape restoration, the application of visual analysis using GIS and the use of indigenous plant materials for restoration and rehabilitation. Selected field trips at student expense. Recommended Preparation: LArc 288, 289. Prereq: LArc 268, 269 and 361. (Spring only)
  - **LArc 364 Summer Study Abroad Design Studio** (6 cr) Intermediate site scale planning and design with an emphasis on bioregional context, sustainable development and the cultural landscape as influencing site design factors. A summer abroad studio that may be substituted for LArc 356, 357 or LArc 361, 362. Recommended Preparation: Art 110, 111. Prereq: LArc 210, 246, 245, 259, 260, and 288. Coreq: LArc 382 and 390. (Summer only)
  - **LArc 369 Landscape Architecture Construction IV** (2 cr) Construction detailing, concrete masonry units, paving systems, erosion control, lighting and electrical, and steel detailing with an emphasis on the use of sustainable materials. Recommended Preparation: LArc 210, 268, and 269. Prereq: LArc major, LArc minor, or perm. (Spring only)
  - **LArc 382 Landscape, Language and Culture** (2 cr) Students study the Italian language, utilizing the regional, historic landscape of southern Piedmont and the markets, museums, and cultural events of Cremolino, Ovada and Aquir Termini as a resource for enhancing language skills. Prereq: LArc 245, 246, 259, and 260. Coreq: LArc 364 and 390. (Summer only)
  - **LArc 390 Italian Hill Towns and Urban Centers** (3 cr) A summer lecture and field experience course exploring the historical foundations of community and urban pattern utilizing Italian hill towns and urban centers as a resource. Students study the organic and formal relationships between landscape and human settlement as well as the relationship between urban form and political and historical context. Recommended Preparation: Art 111, 208, 209, LArc 155, 156, 389. Prereq: LArc 245, 259, and 260. Coreq: LArc 364 and 382. (Summer only)

2. Change the number, title, description, recommended preparation, and class meeting information of the following course [Effective: Summer 2004]  
 LArc ~~212380~~ **Irrigation Workshop** ~~Water in the Urban Context~~ (2 cr) (LArc 212) Irrigation as a design process; ~~production of a number of drawings for projects of different scales. principles of water conservation and water harvesting in site design with the production of a number of drawings and projects at different scales.~~ Accelerated three-week course. Recommended Preparation: LArc 210. (Spring only)
3. Change the description, recommended preparation and prerequisites of the following courses [Effective: Summer 2004]  
 LArc **259 Landscape Architecture I** (6 cr) Introduction to landscape architecture design; emphasis on theory, process, and design elements as they apply to the profession; includes readings, lectures, field trips, small-scale design projects (~~parks, plazas, courtyards~~). Nine studio hrs a wk; field trips required at student expense; guest lectures required outside of class meeting time. Recommended Preparation: LArc 288, 289, and Art 111. Prereq: Engl 101 and 102 with minimum grade of C; Art ~~424~~ 110. (Fall only)
4. Change the number, credits, description, recommended preparation and class meeting information of the following course [Effective: Summer 2004]  
 LArc ~~270268~~ **Landscape Construction I** (~~42~~ cr) (LArc 270) ~~Site G~~ Grading and drainage, earthwork planimeter computations, cut and fill, and road layout (horizontal/vertical curves). ~~Selected field trips at student expense. with a focus on areas around buildings, roads, parking, walks and plazas, cut and fill and horizontal road layout.~~ Recommended Preparation: Math 143. Prereq: LArc major, LArc minor, or perm; ~~recommended preparation: Math 137 or 143. (Spring only)~~
5. Change the number, credits, description, recommended preparation, prerequisites and class meeting information of the following course [Effective: Summer 2004]  
 LArc ~~359356~~ **Landscape Architecture II** (~~63~~ cr) (LArc 359) Intermediate ~~scale~~ site ~~planning and design problems that emphasize the analysis, development, and presentation of solutions for urban, rural, and regional housing and recreation projects; introduction of senior critique; common project done with a focus on community project done in cooperation with Department of Architecture. Selected field trips at student expense.~~ Prereq: LArc ~~260, LArc 270~~ 210, 245, 246, 260, 268, and 269 or perm. (Fall only)
6. Change the number, title, credits, description, recommended preparation, prerequisites and class meeting information of the following course [Effective: Summer 2004]  
 LArc ~~360361~~ **Landscape Architecture III** (~~63~~ cr) (LArc 360) Intermediate scale ~~land~~ planning and design projects ~~problems~~ that emphasize sustainable development practices for the urban and rural environment with ~~the application of visual analysis techniques and the use of indigenous plant materials for restoration and rehabilitation a focus on the integration of wetland ecology planning, storm water management and wildlife habitat with an emphasis on the use of indigenous plant materials for restoration and rehabilitation.~~ Selected field trips at student expense. Recommended Preparation: LArc 288 and 289. Prereq: LArc ~~359~~ 260, 268, and 269. (Spring only)
7. Change the description, recommended preparation and prerequisites of the following course [Effective: Summer 2004]  
 LArc **480 Issues for the Emerging Landscape** (3 cr) A capstone ~~experience for students in landscape architecture; focus on the emerging issues of landscape architecture and associated disciplines. course exploring the emerging cultural and environmental issues significant to the practice and scholarship of landscape architecture, land planning and community development. (Includes a service learning option.)~~ Recommended Preparation: Comm 101. Prereq: Jr. standing. (Spring only)
8. Change the number, title, credits, description, prerequisites and class meeting information of the following course [Effective: Summer 2004]  
 LArc ~~247245~~ **Landscape Graphics I** (~~32~~ cr) (LArc 247) ~~May be used as core credit in J-3-d.~~ Development of ~~hand drawn~~ hand drawn techniques and skills in various media ~~used in the~~ preparation of landscape architecture ~~graphic~~ presentations both in plan, section/elevation and perspective renderings. Selected field trips at student expense. Prereq: LArc major, LArc minor, or perm.
9. Change the number, title, credits, description, recommended preparation and class meeting information of the following course [Effective: Summer 2004]  
 LArc ~~371368~~ **Landscape Architecture Construction III** (~~42~~ cr) (LArc 371) ~~Study of landscape construction including electrical lighting, stormwater management, construction detailing, layout and specifications, retaining walls, paving, and the use of sustainable materials. Selected field trips at student expense. Construction detailing, layout and dimensioning, construction and materials specifications, retaining walls and concrete detailing with an emphasis on the use of sustainable materials.~~ Prereq: LArc major, LArc minor, or perm. (Spring only)
10. Change the title and prerequisites of the following course [Effective: Summer 2004]  
 LArc **459 Landscape Architecture III-IV** (6 cr) Design development and the preparation of contract documents. Selected field trips at student expense; attendance at outside events (lectures, symposiums, films). Prereq: LArc ~~270, 359, 371~~ 268, 269, 357, 368, and 369.

11. Change the title of the following course [**Effective:** Summer 2004]  
LArc 460 **Landscape Architecture IIIIV** (6 cr) Student critique of a professional landscape architectural project; completion of a comprehensive project(s) demonstrating mastery in areas of land planning and/or design, plant materials, construction, graphics, and computers. Prereq: LArc 459.
12. Change the curricular requirements of **Landscape Architecture** (B.L.Arch.) [**Effective:** Summer 2004]  
Beginning with Landscape Architecture I, all landscape architecture students are required to have their own computer and appropriate software for use in their studios.

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

Arch 483 Urban Theory and Issues (3 cr)  
~~Art 100 Visual Art (3 cr)~~  
Art 110 Visual Communication (2 cr)  
Art 111 Drawing I (2 cr)  
~~Art 121 Visual Communication and the Design Process (2 cr)~~  
Biol 102 Biology and Society (4 cr)  
Biol 314 Ecology and Population Biology or For/Rnge/WLF 221 Natural Resources Ecology (3-4 cr)  
CE 218 Elementary Surveying (2 cr)  
Geol 101 Physical Geology (4 cr)  
LArc 155, 156 Introduction to Landscape Architecture I-II (2 cr)  
LArc 210 Computer Applications in Landscape Architecture (2 cr)  
~~LArc 212 Irrigation Workshop (2 cr)~~  
~~LArc 247 Landscape Graphics (3 cr)~~  
LArc 245 Landscape Graphics I (2 cr)  
LArc 246 Landscape Graphics II (2 cr)  
LArc 259, 260 Landscape Architecture I (12 cr)  
~~LArc 270, 371 Landscape Construction I-II (8 cr)~~  
LArc 268 Landscape Construction I (2 cr)  
LArc 269 Landscape Construction II (2 cr)  
LArc 288, 289 Plant Materials I-II (7 cr)  
LArc 358 Professional Office Practice, LA (2 cr)  
~~LArc 359, 360 Landscape Architecture II (12 cr)~~  
LArc 356, 357 Landscape Architecture II (6 cr)  
LArc 361, 362 Landscape Architecture III (6 cr)  
LArc 368 Landscape Architecture Construction III (2 cr)  
LArc 369 Landscape Architecture Construction IV (2 cr)  
LArc 380 Water in the Urban Context (2 cr)  
LArc 385 GIS Primer (3 cr)  
LArc 389 History of Landscape Architecture (3 cr)  
LArc 459, 460 Landscape Architecture III (12 cr)  
LArc 480 Issues for the Emerging Landscape (3 cr)  
Math 143 Pre-calculus Algebra and Analytic Geom (3 cr)  
Soil 205 The Soil Ecosystem (3 cr)  
Electives to total 133 cr for the degree, of which at least 6 cr must be from psychology and sociology for transfer students from other universities.

Recommended electives:

Arch 284 Computer-Aided Design (3 cr)  
Arch 374 Computer Applications in Architecture (2 cr)  
Art 121 Design Process I (2 cr)  
Art 380 Digital Imaging (3 cr)  
Fish 430 Riparian Ecology and Management (3 cr)  
For 235 Society and Natural Resources (3 cr)  
For 429 Landscape Ecology (2 cr)  
Geog 180 Spatial Graphics (3 cr)  
Geol 335 Geomorphology (3 cr)  
LArc 364 Summer Study Abroad Design Studio (6 cr)  
LArc 382 Landscape, Language and Culture (2 cr)  
LArc 390 Italian Hill Towns and Urban Centers (3 cr)  
LArc 490 Computer-Aided Regional Landscape Planning (3 cr)  
Phil 452 Environmental Philosophy (3 cr)  
RRT 470 Interdisciplinary Natural Resource Planning (3 cr)  
RRT 486 Public Involvement in Natural Resource Management (3 cr)  
Vtd 345 Advanced Modeling (3 cr)  
Vtd 366 Animation (3 cr)  
Vtd 371 Interactive Technologies (3 cr)

**Materials, Metallurgical, Mining and Geological Engineering**

1. Change the recommended preparation and prerequisites of the following course [**Effective:** Summer 2004]  
**Met ID341 Particulate Materials Processing** (4 cr) WSU MSE 341. Same as MSE ID341. Engineering science of particulates; powder production, powder properties, separation; design of systems applied to metals, ores, and concentrates. Three lec and one hr of lab a wk; two 1-day field trips. Recommended Preparation: CS 211, Phys 212, and Engr 240. Prereq: Chem 112, ~~Engr 210, CS 112, Met 211, ME 264.~~ Coreq: Math 310.
  
2. Change the prerequisites of the following course [**Effective:** Summer 2004]  
**Met 344 Hydroprocessing of Materials** (4 cr) Same as MSE 344. Intro to hydroprocessing; dissolution of metals, minerals, and materials; recovery of metals from solutions: solvent extraction, ion exchange, precipitation; electrometallurgy; bioprocessing; design of agitators, mixer-settlers, electrolytic cells; flowsheet design and analysis. Three lec and one 3-hr lab a wk. Prereq: Met 308, ~~211,~~ and 309.
  
3. Change the curricular requirements of **Materials Science and Engineering (B.S.M.S.E.)** [**Effective:** Summer 2004]  
 Amst 301 Studies in American Culture or Phil 103 (3 cr)  
 Chem 111 Principles of Chemistry I (4 cr)  
 Chem 112 Principles of Chemistry II (5 cr)  
 Chem 305 Physical Chemistry (3 cr)  
CS 112 Introduction to Problem Solving and Programming (3 cr)  
 Econ 201 or 202 Principles of Economics or Econ 272 Foundations of Economic Analysis (3-4 cr)  
 Engl 102 Essay Writing (3 cr)  
 Engl 317 Technical Writing (3 cr)  
 Engr 105 Engineering Graphics (2 cr)  
 Engr 210 Engineering Statics (3 cr)  
 Engr 240 Introduction to Electrical Circuits (3 cr)  
 Engr 350 Engineering Mechanics of Materials (3 cr)  
 Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)  
 Math 310 Ordinary Differential Equations (3 cr)  
 MSE 101 Intro to Metallurgy and Materials Science (1 cr)  
~~MSE 130 Engineering Analysis and Computations (3 cr)~~  
 MSE 201 Elements of Materials Science (3 cr)....  
 Electives to satisfy UI requirements listed in J-3.

The minimum number of credits for the degree is ~~429~~128, exclusive of Engl 101 and mathematics courses numbered lower than Math 170.

4. Change the curricular requirements of **Metallurgical Engineering (B.S.Met.E.)** [**Effective:** Summer 2004]  
 Required course work includes the university requirements (see regulation J-3) and the following:  
  
 Amst 301 Studies in American Culture or Phil 103 (3 cr)  
 Chem 111 Principles of Chemistry I (4 cr)  
 Chem 112 Prin of Chem II (5 cr)  
 Chem 305 Physical Chemistry (3 cr)  
CE 360 Fundamentals of Geotechnical Engineering (4 cr)  
CS 112 Introduction to Problem Solving and Programming (3 cr)  
 Econ 201 or 202 Principles of Economics of Econ 272 Foundations of Economic Analysis (3-4 cr)  
Engl 102 College Writing and Rhetoric (3 cr)  
 Engl 317 Technical Writing (3 cr)  
 Engr 105 Engineering Graphics (2 cr)  
 Engr 210 Engineering Statics (3 cr)  
 Engr 240 Introduction to Electrical Circuits (3 cr)  
 Engr 350 Engineering Mechanics of Materials (3 cr)  
 Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)  
 Math 310 Ordinary Differential Equations (3 cr)  
 Met 101 Intro to Metallurgy and Materials Science (1 cr)  
~~Met 130 Engineering Analysis and Computations (3 cr)~~  
 Met 201 Elements of Materials Science (3 cr)  
 Met 308 Thermodynamics of Materials (3 cr)  
 Met 309 Transport Phenomena for Design (4 cr)  
 Met 313 Physical Metallurgy (4 cr)  
 Met 341 Particulate Materials Processing (4 cr)  
 Met 344 Hydroprocessing of Materials (4 cr)  
 Met 407 Materials Fabrication (3 cr)  
 Met 412 Mechanical Behavior of Materials (3 cr)

Met 413 Phase Equilibria in Materials (3 cr)  
 Met 414 Process Design (3 cr)  
 Met 415 Materials Selection and Design (3 cr)  
 Met 417 Instrumental Analysis (3 cr)  
~~Met 423 Corrosion (3 cr)~~  
 Met 442 Pyroprocessing of Materials (4 cr)  
~~Min 352 Cost Engineering and Management (3 cr)~~  
 Phys 211, 212 Engineering Physics I, II (8 cr)  
 Stat 301 Probability and Stat or CE 402 Applied Numerical Methods for Engineers (3 cr)  
 Technical electives (9 cr)  
 Electives to satisfy the UI requirements listed in J-3.

The minimum number of credits for the degree is ~~131~~130, exclusive of Engl 101 and mathematics courses numbered lower than Math 170.

5. Change the curricular requirements of the **Metallurgical Engineering** Minor [**Effective:** Summer 2004]
  - Met 201 Elements of Materials Science or ME 261 Engineering Materials (3 cr)
  - Met 309 Metallurgical Transport Phenomena (~~34~~ cr)
  - ~~Met 310 Metallurgical Reactor Design (3 cr)~~
  - ~~And one of the following sets of courses:~~
  - ~~And 11 cr from the following courses (Note: If completing both the Metallurgical Engineering and the Materials Sciences and Engineering minors, must have 8 unique credits towards each minor):~~
    - ~~Met 313, 316 Physical Metallurgy I and II (7 cr)~~
    - ~~Met 313 Physical Metallurgy I (4 cr)~~
    - ~~OR~~
    - ~~Met 211 Metallurgical Mass and Energy Balance (3 cr)~~
    - Met 341 Particulate Materials Processing (4 cr)
    - Met 344 Hydroprocessing of Materials (4 cr)
    - ~~Met 407 Materials Fabrication (3 cr)~~
    - Phys 212 Engineering Physics II (3 cr)
  
6. Add the **Materials Science and Engineering** Minor [**Effective:** Summer 2004]
  - MSE 201 Elements of Materials Science or ME 261 Engineering Materials (3 cr)
  - MSE 309 Metallurgical Transport Phenomena (3 cr)
  - And 11 cr from the following courses (Note: If completing both the Metallurgical Engineering and the Materials Sciences and Engineering minors, must have 8 unique credits towards each minor):
    - MSE 313 Physical Metallurgy I (4 cr)
    - MSE 341 Particulate Materials Processing (4 cr)
    - Met 344 Hydroprocessing of Materials (4 cr)
    - MSE 407 Materials Fabrication (3 cr)
    - MSE 412 Mechanical Behavior of Materials (3 cr)
    - Phys 212 Engineering Physics II (3 cr)

### Mechanical Engineering

1. Add the following course [**Effective:** Summer 2004]
  - ME **225 Introduction to Machine Design** (2 cr) Two dimensional hand drawing of solid objects, three dimensional concepts, drawing processes, dimensioning, threads & fasteners, and tolerances. Prereq: ME 123.
  
2. Change the prerequisites of the following courses [**Effective:** Summer 2004]
  - ME **301 Computer Aided Design Methods** (3 cr) Two and three dimensional graphics including geometric dimensioning and tolerancing (GDT); use of solid modeling software in engineering design (CAD); finite element analysis (FEA), and manufacturing (CAM). Prereq: ME 223, ~~225, 262 or and~~ Engr 105 ~~or ME 262~~.
  - ME **J413/J513 Engineering Acoustics** (3 cr) ME 513 same as ECE 579. Fundamentals of acoustics including wave theory; transmission through layers, generation and reception; low frequency models; application to sound measurement, transducers, loudspeaker cabinet design, and nondestructive testing; acoustic design project reqd. Additional projects/assignments reqd for grad cr. Prereq: ~~Engr 240 or ECE 212, and Math 310, or~~ ME 313, ~~Engr 320, and Engr 335~~.
  - ME **426 Mechanical Systems Design II** (3 cr) *May be used as core credit in J-3-d.* Continuation of ME 424. Additional manufacturing issues; continuation of a two-semester, industrial sponsored capstone design project (begun in ME 424) to include the detail design, prototype construction, and testing. Prereq: ME ~~330 and~~ 424.
  
3. Change the description of the following course [**Effective:** Summer 2004]

**ME 323 Design Seminar** (3 cr) Structuring a solution approach for open-ended problems. Elements of modern design theory. Multidisciplinary teamwork. Information collection and self-directed learning. Professional issues in engineering practice such as economics, ethics, environmental topics, safety, and patents. Approximately 25% of class time is devoted to project work. One or two field trip(s). Prereq: ME 223.

4. Change the number, description and prerequisites of the following course [**Effective:** Summer 2004]  
**ME 441341 Intermediate Mechanics of Materials** (3 cr) Mechanics of materials approach to three dimensional stress and strain, plates, curved beams, pressure vessels, non-circular torsion and unsymmetrical ending; introduction to elementary energy methods and advanced ~~analysis methods~~ strength theories. Prereq: Engr 350, Math 275, 310.
5. Change the prerequisites and corequisites of the following course [**Effective:** Summer 2004]  
**ME 424 Mechanical Systems Design I** (3 cr) *May be used as core credit in J-3-d.* Study of production realization process including project planning, concept design, detail design, and manufacturing processes; modern design and manufacturing practices in each of these areas applied to a two-semester, industrial sponsored capstone design project (continued in ME 426). Prereq: ME 301, 313, 323, 325, 330, 345, and Certification. ~~Coreq: ME 330.~~
6. Change the curricular requirements of **Mechanical Engineering** (B.S.M.E.) [**Effective:** Summer 2004]  
 This program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Note: Pre-advising is required to register in any ME course. To graduate in this program, a minimum grade of C must be earned in all required courses except ME 426 and 430 a student may accumulate no more than five grades of D or F in the mathematics, science, or engineering courses used to satisfy graduation requirements. Included in this number are multiple repeats of a single course or single repeats in multiple courses and courses transferred from other institutions.

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

~~\*AmSt 301 or~~ Phil 103 Ethics or Phil 252 Biomedical Ethics (3 cr)  
 CE 411 Engineering Fundamentals (1 cr)  
 Chem 111 Principles of Chemistry I (4 cr)  
 Comm 101 Fundamentals of Public Speaking (2 cr)  
 Econ 201 or 202, or 272 (3-4 cr)  
 Engl 102 College Writing and Rhetoric (3 cr)  
 Engl 317 Technical Writing (3 cr)  
 Engr 210 Engineering Statics (3 cr)  
 Engr 220 Engineering Dynamics (3 cr)  
 Engr 240 Introduction to Electrical Circuits (3 cr)  
 Engr 320 Engineering Thermodynamics and Heat Transfer (3 cr)  
 Engr 335 Engineering Fluid Mechanics (3 cr)  
 Engr 350 Engineering Mechanics of Materials (3 cr)  
MSE 201 Elements of Materials Science (3 cr)  
 Math 170, 175, 275 Analytic Geometry and Calculus (11 cr)  
 Math 310 Ordinary Differential Equations (3 cr)  
 ME 123 Introduction to Mechanical Design (3 cr)  
 ME 223 Mechanical Design Analysis (3 cr)  
~~ME 261 Engineering Materials or Met 201 Elements of Materials Science (3 cr)~~  
~~ME 262 Sophomore Laboratory (3 cr)~~  
ME 225 Introduction to Machine Design (2 cr)  
 ME 301 Advanced Engineering Graphics (3 cr)  
 ME 313 Dynamic Modeling of Engineering Systems (3 cr)  
 ME 323 Mechanical Engineering Design Seminar (3 cr)  
 ME 324 Dynamic Analysis in Machine Design (3 cr)  
 ME 325 Machine Component Design I (3 cr)  
 ME 330 Experimental Methods for Engineers (3 cr)  
ME 341 Intermediate Mechanics of Materials (3 cr)  
 ME 345 Heat Transfer (3 cr)  
 ME 424 Mechanical Systems Design I (3 cr)  
 ME 426 Mechanical Systems Design II (3 cr)  
 ME 430 Senior Laboratory (3 cr)  
 ME 435 Thermal Energy Systems Design (3 cr)  
 Phys 211, 212, 213 Engineering Physics I-II-III (12 cr)  
 Technical electives selected from ME 409, 410, 411, 412, 413, 415, 416, 417, 420, 422, 425, 433, ~~441, 443, 444, 451, 461, 463, 472, 473, 481~~ (9 cr) \*\*  
~~Mechanics of materials science technical elective selected from ME 415, 416, 425, 441, 461, 463, 473 (3 cr)~~

~~Humanities and social sciences electives to satisfy UI~~ **Students must satisfy the General Core Studies** requirements in J-3. ~~Grade of C or better is required in these courses, excluding CORE 101/102. \*(Students who take Core Discovery CORE 101/102: Social Transformations/Market Myths are not required to take AmSt 301 or Phil 103.)~~

The minimum number of credits for the degree is 128, not counting Engl 101, Math 143, and other courses that might be required to remove deficiencies.

Students majoring in mechanical engineering ~~must earn a grade of C or better in each specified lower division course before~~ **may accumulate no more than three grades of D or F in the mathematics, science or engineering courses used to satisfy lower division requirements.** Included in this number are multiple repeats of a single course or single repeats in multiple courses and courses transferred from other institutions. In addition, students must also earn at least five grades **better than a C in mathematics, science or engineering courses used to satisfy lower division requirements before** registration is permitted in upper-division mechanical engineering courses. The specific lower-division courses are: Chem 111; ~~Comm 101~~; Engr 210, 220, and 240; ~~Engl 102~~; Math 170, 175, 275, ~~and 310~~; ME 123, 223, ~~225~~**261, and 262**; ~~MSE 201~~; and Phys 211, 212, and 213. In addition, a grade higher than C must be earned in at least five of these courses. A grade of P (pass) in any of these courses is considered as a C grade in satisfying this certification requirement.

\*\* With departmental approval, a graduate-level or special topics (ME 404) course may be used as a Technical Elective.

## **Medical Science**

1. Change the credits and description of the following courses [**Effective:** Summer 2004]
  - MedS **505 Preceptorship** (~~1 cr-arr~~ **Provides**) opportunity for first-year medical students to gain personal experience with and insight into medical practice situations; the student will be stationed with physicians in their offices in accordance with ~~the student's~~ preference of discipline **and availability** at the WWAMI sites.
  - MedS **ID&WS513 Introduction to Clinical Medicine I** (~~4~~ **2** cr) WSU Med S 513. ~~Communication skills and interview techniques to form the basis for the eventual doctor-patient relationship.~~ **Exposes students to clinical skills and professional issues with instruction in interview techniques that form the basis for the doctor-patient relationship and the skills of communicating with patients.** (Fall only).
  - MedS **ID&WS535 Introduction to Clinical Medicine III** (~~2~~ **3** cr) WSU Med S 535. ~~Screening physical exam. Teaches the basic physical exam of the adult through use of lectures, audiovisual aids and small group tutorials where students in supervised settings learn and practice the physical exam. Students are introduced to principals of clinical reasoning and continue to explore professional issues.~~ (Spring only).
2. Change the title, credits and description of the following courses [**Effective:** Summer 2004]
  - MedS **ID&WS510 Histology/Microscopic Anatomy** (~~3-4~~ **3** cr) WSU Med S 510. ~~Microscopy of cells, tissues and organs of the human body; emphasis on function. Provides the principles and concepts of histology, defines the morphological characteristics of the cells, tissues and organs of the human body and relates this information to functional processes.~~ Three lec and one 3-hr lab a wk. (Fall only).
  - MedS **ID&WS512 Basic Mechanisms in Cellular Physiology** (~~4~~ **3** cr) WSU Med S 512. ~~Basic physiological mechanisms, primarily at the cellular level. Presents fundamental cellular events underlying the following topics: physiology of the cell membrane including ionic and electrical potential gradients, active transport, excitability and action potentials; biophysics of sensory receptors; neuromuscular transmission; muscle energetics and contractility; spinal reflexes and central synaptic transmission; autonomic nervous system; energy metabolism and temperature regulation; epithelial transport; gastrointestinal motility and secretions.~~ (Fall only).
  - MedS **ID&WS516 Systems of Human Behavior I** (~~2~~ **1** cr) WSU Med S 516. ~~Conceptual systems and models of behavior, normality and abnormality, environment and social learning, conditioning, learning in the autonomic nervous systems, catecholamines and behavior, illness behavior, feelings, emotion and cognition, physician-patient interaction, diseases and techniques of behavior change; human development from birth to senescence emphasizing disorders that occur during various life phases. Selected overview of contributions from behavioral sciences to clinical practice of primary care physicians. Sensitizes students to impact of such factors as emotional and physical development, cultural backgrounds, social roles, families, sexual identities, and belief systems upon their effectiveness as physicians. Encourages appreciation of the role of behavioral factors in major management problems faced in medical practice; covers physical and psychological development of the individual from the embryo through old age; teaches skills in analyzing behavior, defining behavior objectives, and designing precise treatment strategies to obtain these objectives.~~ (Fall only).
  - MedS **ID&WS531 Head, Neck, Ear, Nose, and Throat Anatomy and Embryology 2** (~~5~~ **4** cr) WSU Med S 531. ~~Gross anatomy, including skull, pharynx, and larynx; audition and balance. Continuation of MedS 511. Presents understanding of the formation and 3-dimensional relationships of the major structures in the human body. This is a laboratory course where the diversity variability and adaptability of the human phenotypic will be examined in the dissection laboratory and in living anatomy. Focus on Head & Neck anatomy.~~ (Spring only).
3. Change the title and description of the following courses [**Effective:** Summer 2004]

- MedS ID&WS511 **Anatomy of the Trunk and Embryology I** (5 cr) WSU Med S 511. ~~Regional study of anatomy of human thorax, abdomen, pelvis, and perineum in correlation with clinical cases. Presents understanding of the formation and 3-dimensional relationships of the major structures in the human body. This is a laboratory course where the diversity variability and adaptability of the human phenotype will be examined in the dissection laboratory and in living anatomy. Focus is on trunk anatomy.~~ Two lec and one 3-hr lab a wk. (Fall only).
  - MedS ID&WS514 **Molecular and Cellular Biology/Biochemistry I** (3 cr) WSU Med S 514. ~~Classical molecular and cellular biochemistry, cellular physiology, and molecular genetics. Focuses on how the genome serves as a source of information, and how molecular understanding of gene function produces new therapeutic and diagnostic tools. Topics include how genetic information is stored, mobilized, and used; targets of regulation; molecular medicine; cancer; and genomic therapies.~~ (Fall only).
  - MedS ID&WS520 **Cell and Tissue Response to Injury/Molecular and Cellular Basis of Disease** (4 cr) WSU Med S 520. ~~Cell and tissue injury, inflammation, and neoplasia. Explanations of cell and tissue response to injury, mechanisms of cell injury, the inflammatory process, immunology, immunopathology, thrombosis, normal and abnormal growth, neoplasia, and clinicopathological correlation.~~ (Spring only).
  - MedS ID&WS523 **Medical Introduction to Immunology** (2 cr) WSU Med S 523. ~~Principles of immunology and their relationship to human medicine. Provides a medically relevant foundation regarding the principles of the immune system and the vocabulary and language of immunology; a working knowledge of the immunological basis for defense against infection, immune-mediated pathology, immunodeficiency, and immunological barriers to transplantation; and familiarity with beneficial therapies to modulate the immune response.~~ (Fall only).
  - MedS ID&WS524 **Molecular and Cellular Biology/Biochemistry II** (2 cr) WSU Med S 524. ~~Continuation of MedS 514. Presents metabolism, as integrated at the level of the intact mammalian organism for the purpose of generating energy from food and converting small molecules to essential building blocks of our cells. Fundamental principles of nutrition and chemotherapy of viral, bacterial and neoplastic diseases will also be discussed.~~ (Spring only).
  - MedS ID&WS526 **Systems of Human Behavior II** (2 cr) WSU Med S 526. ~~See MedS ID&WS516 for description.~~ Continuation of MedS 516. (Fall only).
  - MedS ID&WS590 **Introduction to Critical Reading and Evaluation of the Medical Literature** (1 cr) WSU Med S 590. ~~An examination of~~ Examines medical literature for the purpose of primary research, diagnosis, and therapeutic and preventative intervention. (Spring only).
4. Change the number, title, credits and description of the following course [Effective: Summer 2004]  
 MedS ID&WS521 ~~534~~ **Natural History of Microbiology and Infectious Diseases and Chemotherapy** (56 cr) (MedS 521) WSU Med S 521. ~~Pathogenesis, resistance, epidemiology, clinical manifestations and control of bacterial, fungal, parasitic, and viral infectious diseases, principles of chemotherapy and asepsis; sterilization; nosocomial and iatrogenic infections and prevention. Introduces medical microbiology and infectious disease. Emphasis is on the biology of microbial pathogens and the mechanisms of pathogenesis. Lectures also cover clinical manifestations, epidemiology, and general principles of diagnosis, therapy, and prevention of infectious disease.~~ (Spring only).
  5. Change the description and class meeting information of the following course [Effective: Summer 2004]  
 MedS ID&WS522 **Introduction to Clinical Medicine II** (2 cr) WSU Med S 522. ~~Continuation of communication skills especially as related to and dealing with medical history. Continuation of communication skills especially as related to medical history and professionalism.~~ (Spring only).
  6. Change the description of the following course [Effective: Summer 2004]  
 MedS ID&WS532 **Nervous System** (5 cr) WSU Med S 532. ~~Normal~~ Presents the structure and function of the nervous system, including the eye. ~~Neuropathological examples are presented as well as clinical manifestations of neurological disease.~~ (Spring only).

## Neuroscience

1. Add the following courses [Effective: Summer 2004]
  - Neur 508 **Topics in Neuroscience** (1 cr) See Biol 508.
  - Neur 521 **Biological Signal Processing** (3 cr) Introduction to computational neuroscience. Neurons and neuron models, basic signaling mechanisms of neurons, networks of neurons, learning models, learning model algorithms, weight-based memory models. The Hodgkin-Huxley model. A principal emphasis in this course is the development of quantitative models and analysis of neural systems. A term project is required.
  - Neur 526 **Cognitive Neuroscience** (3 cr) See Psyc 526.
  - Neur 590 **Research in Neurobiology** (cr arr) Research rotations in neurobiology. Prereq: perm.
  - Neur 591 **Research in Computational Neuroscience** (cr arr) Research rotations in computational neuroscience. Prereq: perm.
  - Neur 596 **Research in Cognitive and Behavioral Neuroscience** (cr arr) Research rotations in cognitive and behavioral neuroscience. Prereq: perm.

## Psychology and Communication Studies

Add the following course [**Effective:** Summer 2004]

Psyc **526 Cognitive Neuroscience** (3 cr) Same as Neur 526. Examine research in human and animal cognition and its neurological basis. Material covered will include the study of normal cognitive processes in humans with noninvasive behavioral and physiological techniques (e.g., reaction times, fMRI, EEG), the study of brain-injured patients, behavioral and neurophysiological research in animals, and the comparative analyses of cognitive processes across organisms. Computational approaches towards cognitive and neural processing will also be addressed. A selection of the following topics will be covered: perception, object recognition, attention, memory, spatial cognition, motor control, language, executive control, and development. Recommended Preparation: Psyc 325.

### **Rangeland Ecology and Management**

1. Add the following courses [**Effective:** Summer 2004]

- Rnge **102 Opportunities in Rangeland Ecology and Management** (1 cr) Basic principles, contemporary issues, and professional opportunities in rangeland management. Introduction to careers with ranches, land management agencies, consulting firms, and environmental organizations.
- Rnge **435 Wetland Ecology and Management** (3 cr) See Fish 435.
- Rnge **452 World Biomes: North American Ecosystems** (2 cr) A comprehensive survey and analysis of world biomes, which are continental-sized ecosystems. Students will work on team projects with computer-based information technology (geographical information systems, digital media, and interactive multimedia programs) to analyze the structure and function of biomes. This will include a comprehensive analysis of the interrelationships among the environment, flora and fauna, and the major human influences on biomes. Prereq: Biol 213, 314, Rnge 221, or perm.

2. Drop the following course [**Effective:** Summer 2004]

Rnge **352 Natural History of Rangelands** (3 cr). Survey of rangeland plant communities of western North America designed to acquaint students with their physical, climatic, and vegetational characteristics Two lec and one lab/field trip a wk. Prereq: Rnge/For/WLF 221 or equiv. (Spring only).

**Equivalent Course:** Rnge 452.

3. Change the curricular requirements of **Rangeland Ecology and Management** (B.S.Rangeland Ecol.-Mgt.) [**Effective:** Summer 2004]

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

#### **First and Second Years**

Biol 115 Cells and the Evolution of Life (4 cr)

Biol 116 Organisms and Environments (4 cr)

Biol 213 Principles of Biological Structure and Function (4 cr)

Chem 101 Introduction to Chemistry I or Chem 111 Principles of Chemistry I (4 cr)

Chem 275 Carbon Compounds (3 cr)

Comm 101 Fundamentals of Public Speaking (2 cr)

Econ 201, 202 Principles of Economics (6 cr)

For/RRT 235 Society and Natural Resources (3 cr)

~~Rnge 102 Opportunities in Rangeland Ecology and Management (1 cr)~~

~~Rnge 200 Seminar (1 cr)~~

Rnge/WLF/For 221 Natural Resources Ecology (3 cr)

Rnge 251 Principles of Range Resources Management (2 cr)

Soil 205, 206 The Soil Ecosystem and Lab (4 cr)

Stat 251 Principles of Statistics (3 cr)

~~Two of the following courses (4-6 cr):~~

~~Fish/WLF 290 Fish and Wildlife Ecology, Mgt, and Conservation (3 cr)~~

~~For 270 Prin of Forest Ecosystem Management or ForP 250 Prin of Forest Products (2 cr)~~

~~RRT 287 Foundations of Conservation Leadership and Management (2 cr)~~

#### **Summer Session**

~~For/Rnge/WLF/RRT/Fish/ForP 302 Wildland Field Ecology (2 cr)~~

#### **Third and Fourth Years**

Biol 341 Systematic Botany (3 cr)

Engl 317 Technical Writing or Engl 313 Business Writing (3 cr)

For/Rnge/WLF/Fish/RRT/ForP 470 Interdisciplinary Natural Resource Planning (3 cr)

Geog 385 GIS Primer (3 cr)

~~Rnge 352 Natural History of Rangelands (3 cr)~~

Rnge 353 Rangeland Plant Identification and Ecology (3 cr)

Rnge 354 Wildland Vegetation Management and Restoration or Rnge 440 Wildland Restoration Ecology (3 cr)

Rnge 357 Rangeland and Riparian Habitat Assessment (3 cr)  
Rnge 430 Riparian Ecology and Management (3 cr)  
[Rnge 452 World Biomes: North American Ecosystems or For 429 Landscape Ecology \(2 cr\)](#)  
Rnge 456 Integrated Rangeland Management (3 cr)  
Rnge 459 Rangeland Ecology (3 cr)  
Soil 454 Soil Development and Classification (3 cr)

And one of the following options:....

### **Resource Recreation and Tourism**

1. Change the curricular requirements of **Resource Recreation and Tourism** (B.S.Res.Rec.) [Effective: Summer 2004]  
Required Course work includes the university requirements (see regulation j-3) and:  
  
Biol 115 Cells and the Evolution of Life (4 cr)  
Chem 101 Introduction to Chem I or Chem 111 Principles of Chem I [or Geol 101 Physical Geology](#) (4 cr)  
Comm 101 Fundamentals of Public Speaking or one semester of a foreign language (2-4 cr)  
Econ 202 or 201 Principles of Economics (3 cr)  
For/Rnge/WLF 221 Natural Resources Ecology (3 cr)  
For 320 Dendrology or LArc 288 Plant Materials I or Rnge 353 Rangeland Plant Ident and Ecology [or PISc 203 General Botany](#) (3-4 cr)  
For 375 Airphoto Interpretation and Mapping or LArc/Geog 385 GIS Primer (3 cr)  
Math 143 Pre-calculus Algebra and Analytic Geometry or 160 Survey of Calculus or 170 Survey of Calculus II (3-4 cr)  
NR 101 Exploring Natural Resources (taken simultaneously with RRT 287) (1 cr)  
PoIS 101 Intro to Political Science and American Government (3 cr)  
PoIS 462 Natural Resource Policy or PoIS 464 Politics of the Environment or For 484 Forest Policy and Administration (2-3 cr)  
RRT/For 235 Society and Natural Resources (3 cr)  
RRT 287 Foundations of Conservation Leadership and Management (taken simultaneously with NR 101) (2 cr)  
[RRT/For/Rnge/WLF/Fish/ForP 302 Wildland Field Ecology \(2 cr\)](#)  
RRT 304 Conservation Leadership and Mgt Field Studies (3 cr)  
RRT 310 Social Research Methods in Conservation (4 cr)  
RRT 383 Resource Economics for Environmental Policymaking (3 cr)  
RRT 385 Conservation Management and Planning I (3 cr)  
RRT 386 Conservation Management and Planning II (3 cr)  
RRT 387 Environmental Communication Skills (3 cr)  
RRT/For/Rnge/WLF/Fish/ForP 470 Interdisciplinary Natural Resource Planning (3 cr)  
RRT 489 Personalities and Philosophies in Conservation (2 cr)  
RRT 481 Conservation Leadership (3 cr)  
RRT 498 Internship (6-9 cr)  
Stat 251 Principles of Statistics (3 cr)  
Two of the following (6 cr):  
Anth 100 Introduction to Anthropology (3 cr)  
Psyc 101 Introduction to Psychology (3 cr)  
Soc 101 Introduction to Sociology (3 cr)  
One writing course, such as Engl 207, 208, 209, 313, 316, 317 (3 cr)  
[Four/Three](#) of the following social science elective courses, [at least two but no more than three courses in the same discipline from a total of two disciplines \(41-439 cr\)](#)  
[AgEc 467 Economics of Rural Community Development \(3 cr\)](#)  
Anth 410 Research Methods in Anthropology (3 cr)....  
Geog 365 Political Geography (3 cr)  
[Geog 444 Environmental Assessment \(4 cr\)](#)  
Hist 422 The American Landscape (3 cr)....  
RRT 494 Natural Resources Communication (3 cr)  
[RRT 496 Monitoring Impacts in Protected Areas and Wilderness \(3 cr\)](#)  
Soc 310 Methods of Social Research (3 cr)  
Soc 313 Collective Behavior (3 cr)  
Soc 414 Development of Social Theory (3 cr)  
Soc 423 Social Stratification (3 cr)  
Soc 424 Sociology of Gender (3 cr)  
Electives to total 128 cr for the degree
2. Change the curricular requirements of the Environmental Communication, Tourism and Leisure Enterprises, and Wilderness and Nature Conservation Minors [Effective: Summer 2004]  
**ENVIRONMENTAL COMMUNICATION MINOR**

~~Comm 431 Professional Presentation Techniques (3 cr)~~

- Jamm 121 Media Writing and Information Gathering (3 cr)
- RRT 387 Environmental Communication Skills (3 cr)
- RRT 486 Public Involvement in Natural Resource Management (3 cr)
- RRT 487 Environmental Education (3 cr)
- RRT 494 Public Relations for Natural Resources Professionals (3 cr)

At least one course from the following (3 cr):

- Art 280 Understanding Photography (3 cr)
- Comm 331 Conflict Management (3 cr)
- Comm 347 Persuasion (3 cr)

~~Comm 431 Professional Presentation Techniques (3 cr)~~

- Jamm 252 Principles of Public Relations (3 cr)
- Jamm 265 Principles of Advertising (3 cr)
- Jamm 275 Introduction to Video/Television & Digital Media Production (3 cr)
- Jamm 361 Advertising Creativity (3 cr)
- Jamm 425 Feature Article Writing (3 cr)

### **TOURISM AND LEISURE ENTERPRISES MINOR**

Note: This academic minor is offered through both the College of Natural Resources and the College of Education.

- Bus 321 Marketing (3 cr)
- RRT/Rec 181 Introduction to Hospitality Services Industries (3 cr)
- RRT 381/Rec 382 Hospitality Management and Organization (3 cr)
- RRT 494 Public Relations for Natural Resources Professionals (3 cr)
- Rec 340 Leisure and Tourism Enterprises (3 cr)

One course selected from the following (2-3 cr)

- Rec 204/Rec 280 Special Topics/Practicum
- Rec 486 Recreation Program Planning and Marketing I (2 cr)
- RRT 385 Resource Recreation and Tourism Management (3 cr)
- RRT 236/Rec 235 Principles of Tourism (3 cr)

~~RRT 493 International Land Preservation and Conservation Systems (3 cr)~~

- RRT 498 Internship (cr arr)

Minimum of 18 cr required for the minor

### **WILDERNESS AND NATURE CONSERVATION MINOR**

Courses selected from the following (19 credits):

- For/Rnge 221 Natural Resources Ecology or a general ecology course or Biol 331 General Ecology or RRT 306 Winter Field Ecology ~~or RRT 302 Wildland Field Ecology~~ or RRT 304 Conservation Leadership and Mgt Field Studies (2-3 cr)
- RRT 385 Resource Recreation and Tourism Management (3 cr)
- RRT 387 Environmental Interpretive Methods (3 cr)
- RRT 489 Personalities and Philosophies in Conservation (2 cr)
- RRT 490 Wilderness and Protected Area Management (3 cr)
- RRT 491 Wilderness Leadership for Personal Growth (3 cr)
- RRT 493 International Land Preservation and Conservation Systems (3 cr)
- RRT 496 Monitoring Impacts in Protected Areas and Wilderness (3 cr)
- WLF 440 Conservation Biology (3 cr)

### **Teaching, Learning, and Leadership**

1. Change the credits of the following courses [**Effective:** Summer 2004]
  - EDTE 485 (s) **Secondary Internship** (1-~~14~~15 cr, ~~max 28~~) Guided observation, supervised instruction, and comprehensive team and independent teaching in school settings. Graded P/F. Prereq: perm of division. Coreq: integrated course work and ED 401.
  - EDSP 484 (s) **Special Education Internship** (1-~~14~~15 cr, ~~max 14~~) Guided observation, supervised instruction, and comprehensive team and independent teaching in school settings. Prereq: perm of division. Coreq: integrated course work and ED 401.
2. Change the number of the following course [**Effective:** Summer 2004]  
EdAd ~~589~~689 **Critical Thinking** (2-3 cr) (EdAd 589) Same as AdOL ~~589~~689. For individuals curious about the thinking process; a variety of ways of learn about Vertical Thinking and Lateral Thinking; emphasis on practice using Lateral Thinking skills. Prereq: Enrollment in a doctoral program.

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## FOR THE FACULTY'S INFORMATION

### Correction to General Curriculum Report 229:

The Philosophy Department has withdrawn the following course change

Change the number of the following courses [**Effective:** Summer 2004]

Phil ~~415~~**422** **Phenomenology** (3 cr) (~~Phil 415~~) Survey of philosophy of Husserl, Heidegger, Merleau-Ponty, Sartre, and others in the phenomenological tradition.

### Changes to Cooperative Courses Approved Since Last General Curriculum Report:

(ID = taught only at UI; WS = taught only at WSU, LC = taught only at LCSC; ID&WS = can be taught at both UI & WSU; ID&LC = can be taught at both UI & LCSC)

Add the following cooperative courses [**Effective:** Summer 2004]

- AG **WS445 Field Analysis of Sustainable Food Systems** (3 cr) WSU SOILS 445.
- Phil **WS221 Philosophy in Film** (3 cr) WSU Phil 210.

### Other Informational Changes:

Change the description of the following course [**Effective:** Summer 2004]

Japn **ID201-ID202 Intermediate Japanese I** (4 cr) WSU Japn 203, ~~304~~**204**. *May be used as core credit in J-3-d.*