Interdisciplinary Programs

General Information
Interdisciplinary graduate programs cross boundaries and involve faculty members from more than one discipline.

Interdisciplinary Programs Offered
- Master of Science in Hydrologic Sciences
- Master of Arts in Interdisciplinary Studies
- Master of Science in Interdisciplinary Studies
- Master of Science in Materials Science and Engineering
- Master of Engineering in Materials Science and Engineering
- Graduate Certificate in Addiction Studies
- Graduate Certificate in Gerontological Studies

Master of Science in Hydrologic Sciences
College of Arts and Sciences
Department of Geosciences
Graduate Program Coordinator: James McNamara
Math/Geosciences Building, Room 225
Telephone 208 426-1581
FAX 208 426-4061
e-mail: jmcnamar@boisestate.edu
http://earth.boisestate.edu

Department of Biological Sciences
Contact: Kevin Feris
Science/Nursing Building, Room 226
Telephone 208 426-2394
FAX 208 426-1040
e-mail: iroberts@boisestate.edu
http://www.boisestate.edu/biology/

College of Engineering
Department of Civil Engineering
Contact: Molly Gribb
Engineering Technology Building, Room 201C
Telephone 208 426-3764
FAX 208 426-4800

Interdisciplinary Programs Offered
Master of Science in Hydrologic Sciences
Master of Arts in Interdisciplinary Studies
Master of Science in Interdisciplinary Studies
Master of Science in Materials Science and Engineering
Master of Engineering in Materials Science and Engineering
Graduate Certificate in Addiction Studies
Graduate Certificate in Gerontological Studies

General Information
The program leading to the degree of Master of Science (M.S.) in Hydrologic Sciences requires completion of a core curriculum in the hydrologic sciences, elective courses chosen to meet student goals, and original research that culminates in a publicly defended thesis. The emphasis is on the scientific principles governing the movement of water and water-borne material through natural systems, the interaction of water with geological and biological systems, and tools to quantify and predict those movements and interactions. Participation by faculty members from both the Department of Geosciences and the Department of Civil Engineering provides enriched delivery of courses and enhanced student guidance.

Graduate Teaching and Research Fellowships
Graduate fellowships including tuition and fee waivers are funded from three sources: appropriated state funds, endowments, and research grants and contracts. Applicants to the M.S. in Hydrologic Science program who submit all documents required by the admission procedure by February 1 of any given year will be considered for a state appropriated or endowed graduate fellowship to start the following fall semester. Information on graduate fellowships funded by research grants and contracts is available from the coordinator of the graduate program in hydrologic...
science. Prospective students are encouraged to contact individual faculty members for further information about research projects.

Student Guidance

The graduate program coordinator will assign a temporary faculty advisor to each student prior to the first semester of enrollment. By the end of the first semester, the advisor, in consultation with the student, will initiate the appointment of a three-person supervisory committee that will assume responsibility for student guidance.

Application and Admission

An applicant must follow the general application procedures for admission to a graduate program (see Graduate Admission Regulations). Applicants are required to have a baccalaureate degree in a science or engineering discipline from an accredited college or university, and undergraduate courses equivalent to one year each of calculus, chemistry, and calculus-based physics. An applicant must also provide GRE General Test scores, three letters of recommendation from academic faculty, a letter of intent outlining goals for graduate study, and a course summary form; detailed instructions may be obtained on the internet at http://earth.boisestate.edu/GraduatePrograms/index.htm, or from the graduate program coordinator. Once the file for an applicant is complete, it will be evaluated and an admission recommendation (regular, provisional, or denial) will be forwarded to the graduate dean. The graduate dean will make the final admission decision and notify the applicant. Admission is competitive and is not guaranteed to any applicant.

Degree Requirements

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<tr>
<th>Course Offerings</th>
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<tr>
<td>GEOS 511 ADVANCED ENVIRONMENTAL GEOLOGY (3-0-3)(S). Land-use planning, techniques for investigation of surficial materials and water resources. Geologic hazards, surficial deposits and their engineering and hydrologic properties, ground and surface water, waste disposal. Term reports required, field trips required. PREREQ: GEOS 221 or PHYS 220.</td>
</tr>
<tr>
<td>GEOS 512 HYDROGEOLOGY (CE 512)(3-0-3)(F). The study of subsurface water and its relationship to surface water, the hydrologic cycle, and the physical properties of aquifer systems. Flow nets and flow through porous and fractured media. Methods of determination of aquifer characteristics and performance and groundwater modeling. PREREQ: MATH 175.</td>
</tr>
<tr>
<td>GEOS 516 (CE 516)(GEOPH 516) HYDROLOGY (3-0-3)(S). Interdisciplinary earth science concerned with movement and occurrence of water. Watershed-based hydrologic phenomena including hydrologic cycle water-cycle analysis, precipitation, evapotranspiration, snow-melt, streamflow, floods, routing and surface runoff events. Application of analytical techniques to solve water resource problems. May be taken for CE, GEOPH, or GEOS credit, but not in more than one department. PREREQ: MATH 175 or PERM/INST.</td>
</tr>
<tr>
<td>GEOS 517 WATERSHED PROCESSES (3-0-3)(F). In this course we will investigate the theoretical and empirical foundations of physical processes that govern the morphology of watersheds focusing on hillslope and fluvial processes. Our objective is to extract basic physical concepts from laws and equations that are used to describe and model various geomorphic phenomena. The course will involve a mix of lectures, student led discussion, and fieldwork. PREREQ: GEOS 313, MATH 175, PHYS 211.</td>
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GEOS 518 HYDROLOGIC ANALYSIS (3-0-3)(Alternate Years). An overview of applied hydrologic techniques useful to scientists and engineers. Topics include hydrologic modeling, frequency analysis, and watershed assessment. PREREQ: GEOS 416 or PERM/INST.

GEOS 523 ADVANCED GEOMORPHOLOGY (3-0-3)(F/S). Study of Quaternary dating methods, applications of geomorphology to environmental problems, mapping and landscape analysis using GIS, soils, geomorphic response to Quaternary climate change, and climatic, tectonic and autotyclic controls on geomorphic processes. Field trips and a field-based research project required. PREREQ: PERM/INST.

GEOS 526 (CE 527) AQUEOUS GEOCHEMISTRY (3-0-3)(F/S). Basic tools and topics of aqueous geochemistry with an emphasis on low temperature processes in natural waters. Essentials of thermodynamics, kinetics, aqueous speciation, mineral-water interaction, and elemental cycling in the contest of surficial earth processes and environmental challenges. PREREQ: PERM/INST.

GEOS 530 (CE 530) VADOSE ZONE HYDROLOGY (3-0-3)(F). Laboratory and field methods for characterizing physical and hydraulic properties of soils, solution of variably saturated flow problems using analytical and numerical techniques. Computer simulations of flow and transport in variably saturated soils. Course may be taken for either Geology or Civil Engineering credit, but not both. PREREQ: GEOS 412, or GEOS 412, or CE 512, or GEOS 512, or PERM/INST.

GEOS 533 (CE 533) CONTAMINANT TRANSPORT (3-0-3)(S). The fate and transport of dissolved solutes and non-aqueous phase liquids in groundwater systems. Students will analyze field data and develop conceptual models for contaminated sites. The role of engineers and hydrologists in environmental litigation will be addressed through case studies. Course may be taken for either Geology or Civil Engineering credit, but not both. PREREQ: CE 412, or GEOS 412, or GEOS 512, or CE 512, or PERM/INST.

GEOS 570 (GEOG 570) EARTH SYSTEM SCIENCE AND GLOBAL WARMING (3-0-3)(F/S). Survey of interactions among physical biogeochemical processes involved in climate and climate feedback. Explore in detail scenarios of global warming for the next century and their reliability. PREREQ: PERM/INST.

GEOS 605 TOPICS IN GEOMORPHOLOGY (3-0-3)(F/S). Topical investigation of geomorphic processes, including the influences of geology, hydrology, biology, climate, tectonics, and time on landscape evolution and ecosystems development. Includes field investigations. May be repeated for credit. PREREQ: PERM/INST.

GEOS 623 (CE 623)(GEOPH 623) ADVANCED HYDROGEOLOGY (3-0-3)(F). Treatment of groundwater occurrence and flow, theory fundamental mechanisms, hydrologic parameters, flow regimes and systems, geologic controls. Course may be taken for either Geology, Geophysics, or Civil Engineering credit, but not for credit in more than one department. PREREQ: MATH 275, MATH 333, and GEOS 412 or GEOS 512 or CE 412 or CE 512, or PERM/INST.

GEOS 624 (CE 624)(GEOPH 624) APPLIED HYDROGEOLOGY (3-0-3)(S). Quantitative determination of hydrologic parameter values and groundwater flow conditions. Conceptual models are geologic context, boundary condition, analytical and numerical solution techniques, measurement methods, applications to engineering and environmental problems. Course may be taken for either Geology, Geophysics, or Civil Engineering credit, but not for credit in more than one department. PREREQ: GEOPH 623 or GEOS 623 or PERM/INST.

GEOS 636 STABLE ISOTOPE GEOCHEMISTRY (3-0-3)(S)(Alternate years). Comprehensive overview of theory, methods, and applications of stable isotope geochemistry to a wide range of earth science problems. PREREQ: PERM/INST.

GEOS 651 BIOGEOCHEMICAL CYCLES (3-0-3)(F/S). A detailed investigation of the global cycling of elements and water and the coupled physical, chemical and biological processes and controls. PREREQ: PERM/INST.

GEOS 653 GROUNDWATER MICROBIOLOGY (3-0-3)(F/S). An exploration of the interface of microbiology and hydrogeology and aqueous geochemistry with an emphasis microbial processes and ecology and redox transformations produced by natural and contaminant-related disequilibrium in the subsurface. PREREQ: PERM/INST.

GEOS 655 COUPLED BIOGEOCHEMICAL KINETICS AND TRANSPORT (3-0-3)(F/S). A detailed investigation of the smaller scale (kilometer to micrometer) flow of elements and water through coupled physical, chemical and biological processes, with an emphasis on the interplay of mass and energy transfer rates and biogeochemical kinetic constraints. PREREQ: PERM/INST.

GEOS 657 REACTIVE TRANSPORT MODELING (3-0-3)(F/S). The application of geochemical and reactive transport computer codes to coupled flow and reactive transport problems with an emphasis on subsurface systems. PREREQ: PERM/INST.

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Master of Arts in Interdisciplinary Studies
Master of Science in Interdisciplinary Studies

Director: Daryl Jones
College of Arts and Sciences
Education Building, Room 601
Telephone 208 426-1414
FAX 208 426-3006
General Information

Boise State University offers a Master of Arts/Master of Science degree program in Interdisciplinary Studies. In consultation with faculty, students may combine courses from more than one college or more than one department to create an individualized program of educational experience. The program is designed for mature students who wish to continue education at the graduate level but do not seek specialized training in a major area. The program is not a substitute for the traditional master’s degree; rather, it is intended for students with broader interests in several fields or those whose career goals do not match fully with a single, identifiable academic unit or department. Emphasis is placed on continued intellectual and cultural development in a constantly changing society where new intellectual and career interests may extend over several traditional specializations.

The Interdisciplinary Studies (IDS) Program is administered by the Graduate College, housed in the College of Arts and Sciences, and directly supervised by the Director of Interdisciplinary Studies. A university-wide Interdisciplinary Studies Committee consists of the Graduate Dean and one member from each academic College appointed by the respective Deans. The Director of Interdisciplinary Studies serves as the chair of that committee and oversees the program. Each student in the program also has a graduate committee composed of three faculty members from the disciplines making up the student’s interdisciplinary program. The student’s graduate committee has the responsibility of helping the student select a particular program of study and recommends to the Interdisciplinary Studies Committee that it be accepted as the student’s formal program of study and approves the members of the proposed graduate committee and for deciding whether to approve the student’s plan of study.

Application and Admission Requirements

A prospective student must first satisfy general admission requirements and complete the process for admission to the Graduate College, as described in the Graduate Admission Policies and Procedures section of the Boise State University Graduate Catalog. General admission to the Graduate College does not guarantee admission to a graduate program in Interdisciplinary Studies. For admission to the MA or MS Program in Interdisciplinary Studies, a student must meet the following requirements:

- A cumulative GPA in all prior college level work of at least 3.0 (although students who fall below this requirement but who have a cumulative GPA of at least 3.25 for the most recent 60 credit hours will also be considered).
- Successful completion of the IDS Program’s application process, which includes:
  - meeting with the IDS Program Director to discuss expectations and be advised as to the remainder of the application process,
  - selection of a graduate committee composed of 3 graduate faculty members, one of whom is to serve as committee chair,
  - meeting with graduate committee to discuss and prepare a degree plan,
  - submission of a completed Personal Data form,
  - submission of a completed form stating committee has met and approved that degree plan,
  - submission of a degree plan and three-page written statement of justification which:
    - states intellectual, professional, or vocational reasons for requesting entry into the program;
    - explains why traditional degree programs do not meet the applicant’s needs; and
    - justifies the selection of courses in relation to the conception of the individualized program as a whole.
  - submission of two letters of recommendation,
  - approval of the graduate committee and degree plan by the university-wide IDS Committee.

Although each applicant’s prior academic record will be examined to determine whether there are compelling reasons for making an exception, normally the Interdisciplinary Studies Committee will
not consider proposed degree plans from students who fail to meet requirement (1). Applicants who wish to submit additional supporting materials such as GRE scores, letters of recommendation, or a preliminary description of their proposed program of study may do so. Letters of recommendation and preliminary program descriptions should be sent directly to the Director of the IDS Program.

Applications to the IDS Program are considered only twice a year, in October and in March. Application materials as described above must be submitted by October 1 for processing during the fall semester or by March 1 for processing during the spring semester. Applicants are strongly encouraged to submit completed IDS application materials by March 1st or October 1st of the semester prior to the semester of proposed entry into the program, so as to avoid commencing course work which may not be accepted as part of an approved degree plan. The student’s graduate committee and degree plan must be approved before the completion of more than 6 credits toward the program.

Degree Requirements

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<th>Master of Arts or Master of Science Interdisciplinary Studies</th>
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<td>Each program is developed individually according to the student's interests and background but must be intellectually defensible and clearly interdisciplinary in nature. In addition to any Graduate College requirements not mentioned here, the requirements of the IDS Program are as follows:</td>
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Course work must be selected from a minimum of two academic areas.

No more than 6 credits of work completed prior to approval of the degree plan by the IDS Committee may be included in the program.

No more than 11 credits of 300G or 400G courses may be applied toward the program.

No more than 9 transfer credits may be included in the program.

No more than 9 credits of directed research (596) may be included in the program.

Courses may not be challenged for credit.

The degree will consist of a total of no less than 33 credits, of which no more than 16 credits may be earned in the College of Business. Students may select (with IDS Committee approval) from a thesis/project option or a written examination option. The thesis/project will carry 6 credits. Under either option, the student will be required to draw critically upon the two or more disciplines studied and to integrate disciplinary insights.

Students completing the thesis/project option will, upon completion of that option, meet with their 3-person graduate committee for a final review of the thesis or project.

Students completing the examination option will take a written examination prepared by their 3-person graduate committee, with whom they will subsequently meet for a review of results.

Minor revisions to the plan of study may be approved by the Director of Interdisciplinary Studies upon the recommendation of the student’s graduate advisor; major changes must be approved by the university-wide IDS Committee.

All work toward the MA/MS degree in Interdisciplinary Studies must be completed within a period of seven years.

Course Offerings

INTDIS – INTERDISCIPLINARY STUDIES

INTDIS 591 PROJECT (0-V-6). Students are expected to draw critically upon the two or more disciplines studies and to integrate disciplinary insights. Before beginning the Project, a prospectus must be approved by the student’s graduate committee. After its completion, the Project must be defended at an oral examination scheduled by the graduate advisor. PREREQ: Admission to candidacy.

INTDIS 593 THESIS (0-V-6). A Thesis must reflect scholarly integration of the two or more disciplines studied and demonstrate original research or new and logical interpretation of existing data. Before beginning the Thesis, a prospectus must be approved by the student’s
graduate committee. After its completion, the Thesis must be defended at an oral examination scheduled by the graduate advisor. PREREQ: Admission to candidacy.

Master of Science in Materials Science and Engineering

**College of Engineering**

**Department of Materials Science and Engineering**

**Graduate Program Coordinator:** Darryl Butt
Engineering and Technology Building, Room 240
Telephone 208 426-5640
FAX 208 426-2470
e-mail: brittanyrotert@boisestate.edu

**Engineering Graduate Faculty:** Darryl Butt, Kris Campbell, Sean M. Donovan, Megan Frary, Janet Callahan, William Knowlton, Amy Moll, Peter Mullner

**Physics Graduate Faculty:** Charles Hanna, Byung-II Kim, Alex Punnoose, Dmitri Tenne

**Chemistry and Biochemistry Graduate Faculty:** Jeff Peloquin, Dale Russell, Martin Schimpf, Don Warner

**Biological Sciences Graduate Faculty:** Julia Thom Oxford

**General Information**

The Department of Materials Science and Engineering offers two distinct graduate degree programs. The program leading to the Master of Science in Materials Science and Engineering (M.S. MSE) is a thesis-based program designed to prepare students for research and development and further study at the doctoral level. The program leading to the Master of Engineering in Materials Science and Engineering (M.Engr. MSE) is a non-thesis program with a focus on professional development. Both programs are interdisciplinary and involve faculty members from the College of Engineering and the College of Arts and Sciences with expertise in electrical engineering, mechanical engineering, physics, chemistry, and biology.

**Admission Requirements and Application Procedures**

**Admission Requirements.** An applicant must satisfy the minimum admission requirements of the Graduate College. In addition, the applicant must hold a baccalaureate degree in engineering from an ABET-accredited program or a baccalaureate degree in physics or chemistry, and must follow the application procedures specified below. Admission is competitive and the achievement of minimum requirements does not guarantee admission.

**Application Procedures.** A prospective student may apply at any time and should follow the general graduate application procedure for degree-seeking students (see Applying as a Degree-Seeking Student in this catalog). The applicant must also (1) submit a statement of purpose to the graduate program coordinator, (2) have three letters of recommendation submitted directly by the references to the graduate program coordinator, and (3) arrange to have GRE General Test scores submitted by the Educational Testing Service (www.ets.org) directly to Boise State University (code R4018). The statement of purpose should give the educational and professional background of the student and his or her motivation for graduate study including career goals. Once the applicant's file is complete, it will be evaluated by the Materials Science and Engineering Graduate Studies Committee and an admission recommendation (regular, provisional, or denial) will be forwarded to the Dean of the Graduate College. In order to ensure proper mentoring of all graduate students, a recommendation for regular or provisional admission will not be forwarded unless a faculty member of the Department of Materials Science and Engineering is available to serve as the major advisor. The graduate dean will make the final admission decision and notify the applicant and the Materials Science and Engineering Graduate Studies Committee.

**Advisor and Supervisory Committee**

The Materials Science and Engineering Graduate Studies Committee will initiate the assignment of a supervisory committee for each admitted student. The supervisory committee will include a major advisor who serves as chair and at least two additional members appointed such that the committee contains a representative from the College of Engineering and from the College of Arts and Sciences. The role of the supervisory
committee is to guide the student in all aspects of his or her graduate study.

Degree Requirements

Students must complete at least 30 graduate credits distributed as shown in the degree requirements table. A written thesis proposal and oral presentation to the supervisory committee is required prior to the completion of 15 credits applicable to the degree requirements. Work on the thesis can only be undertaken after approval of the thesis proposal by the supervisory committee. The thesis must constitute an original contribution to knowledge in materials science and engineering and must be successfully defended at a final oral examination. All work directly related to the thesis must be represented by at least 6 credits of MSE 593, PHYS 593, or CHEM 593.

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<th>Master of Science in Materials Science and Engineering</th>
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<td>Course Number and Title</td>
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<td>TOTAL</td>
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Special Rule on Transfer Credit. The normal transfer credit policies of the Graduate College hold except that up to 15 transfer credits earned in combination at the University of Idaho and Idaho State University may be applied to either degree program (M.S. MSE or M.Engr. MSE) with the approval of the supervisory committee.

Course Offerings

Additional work will be required to receive graduate credit for undergraduate G courses.

CHEM – CHEMISTRY

CHEM 411G ANALYTICAL CHEMISTRY (3-0-3)(F).
Advanced analytical methodology with a focus on modern chemical instrumentation, signal processing, and error
CHEM 212 and CHEM 322.
CHEM 501 ADVANCED INORGANIC CHEMISTRY (3-0-3)(F). Atomic structure, molecular structure using valence bond and molecular orbital theories, elementary group theory, transition metal coordination chemistry, acids and bases, descriptive transition and nontransition metal chemistry. PREREQ: CHEM 322 or PERM/INST.

ECE – ELECTRICAL AND COMPUTER ENGINEERING

ECE 540 INTRO TO INTEGRATED CIRCUIT AND MEMS PROCESSING (3-0-3)(F). Fundamentals of integrated circuit and microelectromechanical systems (MEMS) fabrication technology; semiconductor substrates; theory of unit processes such as diffusion, oxidation, ion implantation, rapid thermal processing, photolithography, wet etching and cleaning, dry etching, thin-film deposition; chemical mechanical polishing; process integration; metrology; statistical process control; TCAD. COREQ: ECE 540L. PREREQ: ECE 323 or PERM/INST.

ECE 540L INTRO TO INTEGRATED CIRCUIT AND MEMS PROCESSING LAB (0-3-1)(F). Semiconductor cleanroom practices; heavy lab safety; students will fabricate and test simple structures in lab; application of TCAD to practical problems. COREQ: ECE 540.


ECE 542L PHOTOLITHOGRAPHY LAB (0-3-1)(F/S). Cleanroom lab experience accompany ECE 542, utilizing a projection-printing wafer stepper, photoresist wafer track, SEM, and optical metrology equipment. Use of TCAD lithography simulation software. PREREQ: ECE 342. COREQ: ECE 542.

MSE – MATERIALS SCIENCE AND ENGINEERING

MSE 505 BONDING AND STRUCTURE OF MATERIALS (3-0-3)(F/S). Bonding, atomic arrangements and crystal structures of metals, ceramics, electronic materials and polymers; electronic structure of solids; physical properties of solids; defects in solids; relationship between processing, microstructure and properties of materials, PREREQ: ENGR 245.

MSE 507 BIOL 577)(ME 577) BIOMATERIALS (3-0-3)(F/S). Theory of biomaterials science. Medical and biological materials and their applications. Selection, properties, characterization, design and testing of materials used by or in living systems. May be taken for BIOL, ME or MSE credit, but only from one department. PREREQ: ENGR 245 or CHEM 112.

MSE 511 SEMICONDUCTOR MATERIALS (3-0-3)(F/S). Examination of the physical properties of semiconductors including electronic structure, free carrier statistics, optical properties, crystallography, and defects. Study of thermodynamic properties as related to lattice vibrations and diffusion. PREREQ: ENGR 245.

MSE 512 MECHANICAL PROPERTIES OF MATERIALS (3-0-3) (F/S). Study of deformation and fracture in engineering materials, including elastic and plastic deformations; dislocation theory; alloy hardening and creep deformation; fracture mechanisms; linear elastic and nonlinear elastic fracture mechanics; toughening of metals, ceramics, and composites; environmentally assisted failure. PREREQ: ENGR 245.
PHYS 512 INTRODUCTORY QUANTUM MECHANICS (3-0-3) (F/S). Introduction to fundamentals of quantum mechanics, including Schrödinger equation, energy levels, angular momentum, electron spin, perturbations, and scattering. Applications, such as tunneling, orbitals, magnetic resonance, and nanoscale effects. PREREQ: PHYS 309.

PHYS 515 SOLID STATE PHYSICS (3-0-3)(F/S). Quantum physics applied to understanding the properties of materials, including semiconductors, metals, superconductors, and magnetic systems. PREREQ: PHYS 309.

PHYS 523 PHYSICAL METHODS OF MATERIALS CHARACTERIZATION (3-0-3)(S). Physical principles and practical methods used in determining the structural, electronic optical, and magnetic properties of materials. Course topics will include optical, electron, and scanning microscopies, diffraction, surface analysis, optical spectroscopy, electrical transport, and magnetometry. Individual projects will focus on the application of an analytical technique to solve a specific problem. PREREQ: PHYS 309 or permission of instructor.

PHYS 530 OPTICS (3-0-3). Geometrical and physical optics, including lenses, fiber optics, Fourier optics, polarization, interference, diffraction, lasers, and holography. PREREQ: PHYS 212, MATH 333. COREQ: PHYS 534.

PHYS 532 THERMAL PHYSICS (3-0-3)(S). Discussion of temperature, work, specific heat, and entropy. The laws of thermodynamics are discussed and applied to physical problems. Ideal gases, statistics, Gibbs free energy, and cryogenics. Work on heat transfer of lattice vibrations and phonons will be required. PREREQ: Graduate standing or PERM/INST.

PHYS 534 OPTICS LABORATORY (0-3-1). Laboratory to be taken concurrently with PHYS 530. Experiments in optics, including optical systems, thick lenses, interference, diffraction, Fourier optics, image processing, and holography. COREQ: PHYS 530.

Contact: Theodore McDonald
Health Science Riverside, Room 122
Telephone 208 426-2452
e-mail: tmcdonal@boisestate.edu
http://hs.boisestate.edu/MHS

General Information

The Graduate Certificate in Addiction Studies is an interdisciplinary program offered by the Department of Counselor Education (College of Education), and the Master of Health Science Program (College of Health Sciences). The postgraduate certificate is designed for professionals employed in substance abuse education, prevention or intervention settings. The goal of the certificate program is to prepare students for a variety of positions in the addiction field. The graduate certificate meets the didactic experiences required to become a nationally credentialed Master Addictions Counselor (MAC if holding a Master’s in Counseling), and an Idaho Certified Alcohol and Drug Counselor (CADC) or Advanced Certificate Alcohol and Drug Counselor (ACADC, if holding a related graduate degree).

Admission and Application Requirements

Admission Requirements: Applicants are required to have a baccalaureate degree from an accredited institution, to have completed COUN 545/MHLTHSCI 545 Foundations in Chemical Dependency or its equivalent, and must have achieved a cumulative undergraduate GPA of at least 3.00 on a 4.00 scale. However, these minimum requirements do not guarantee admission to the program. Admission recommendations will be based upon a review of the student’s transcripts and resume, letters of reference, Statement of Purpose, and interview.

Application Procedures: An applicant should follow the general application procedures for graduate degree-seeking students (see Applying as a Degree-Seeking Student in the Graduate Admission Policies and Procedures section of this catalog). In addition, an applicant must submit the following documents to the Graduate Certificate Program Advisor in either the College of Health Sciences or College of Education:

- a resume;

Graduate Certificate in Addiction Studies

College of Education
Department of Counselor Education
Graduate Program Coordinator: Ken Coll
Education Building, Room 614
Telephone 208 426-1821
e-mail: kcoll@boisestate.edu

College of Health Sciences
Master of Health Science Program
a statement of purpose in which the student explains his/her motivation for pursuing a Graduate Certificate in Addiction Studies and describes his/her career interests; and three letters of reference from previous professors evaluating the applicant’s academic potential. (For applicants whose academic record predates the application by five years or more, supervisors may submit the letters of reference. For applicants who applied for a graduate program within 3 years, those references can be used.)

Once the applicant’s file is complete, the Addiction Studies Graduate Certificate Committee will evaluate, interview, and an admission recommendation (regular, provisional, or denial) will be forwarded to the Program Directors (Chairs) of the Counselor Education and Master of Health Science Program. In the case of a recommendation for provisional admission, the Committee will also establish the stipulations that must be satisfied by the student to advance to regular status. Admission to the Certificate in Addiction Studies does not guarantee subsequent admission to any other certificate or graduate degree programs.

Certificate Requirements

A minimum of 18 credits is required for completion of the Graduate Certificate in Addiction Studies.

Prerequisite for the certificate program is COUN 545/MHLTHSCI 545 Foundations in Chemical Dependency (Offered every Fall semester, evening class once per week).

Course Offerings

COUN 541 (MHLTHSCI 544) ADDICTION AND THE FAMILY SYSTEM (3-0-3)(F,S). Examination of multigenerational impact of addiction (drugs, alcohol, work, religion, internet, gambling etc.) on the family system. In addition to dysfunctional roles developed to cope with addiction, class also compares and contrasts communication strategies and parenting styles of unhealthy and healthy family systems. Risk and protective factors, stages of change, and continuum of care from prevention, intervention, treatment and aftercare are addressed. May be taken for COUN or MHLTHSCI credit, but not both. PREREQ: HLTHST 109 or COUN/MHLTHSCI 545 or PERM/INST.

COUN 543 (MHLTHSCI 543) ASSESSING AND MANAGING ADOLESCENT SUBSTANCE ABUSE AND MENTAL HEALTH RISKS (3-0-3)(F)(Even years). Introduction to comprehensive adolescent risk assessment and treatment planning. Examination of current and available comprehensive adolescent assessments, current and available specialized assessments, report writing approaches and effective treatment processes. May be taken for COUN or MHLTHSCI credit, but not both. PREREQ: Graduate standing.

COUN 544 (MHLTHSCI 564) SCREENING AND ASSESSMENT OF ALCOHOL AND DRUG PROBLEMS (3-0-3)(F). Emphasis on screening and assessment tool-procedures for substance abuse. Application of current interventions and screening processes. Legal, social, ethical, and health implications will be investigated. May be taken for COUN or MHLTHSCI credit, but not both. PREREQ: HLTHST 109 or COUN/MHLTHSCI 545 or PERM/INST.

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<th>Course Number and Title</th>
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<td>COUN 541</td>
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TOTAL 18

Course prerequisites or permission of the instructor must also be met.

Students who wish to enroll in courses other than those specified may do so by permission of the Addiction Studies Graduate Certificate Committee.

Students must maintain a minimum 3.0 GPA in all certification course work

Students seeking Alcohol/Drug Counselor certification are strongly advised to take HLTHST 469 and MHLTHSCI 548 if not pursuing the Masters of Counseling Program.
COUN 546 (MHLTHSCI 565) ASSESSMENT AND CASE MANAGEMENT OF ALCOHOL AND DRUG PROBLEMS (3-0-3)(S). Emphasis on case management techniques including legal, social, ethical, and health implications. May be taken for COUN or MHLTHSCI credit, but not both. PREREQ: MHLTHSCI 564 or COUN 544 or PERM/INST.

COUN 547 (MHLTHSCI 547) CHEMICAL ADDICTIONS AND VIOLENCE PREVENTION (3-0-3)(S). Introduction to professional, ethical, legal, and practical aspects of chemical addictions and violence prevention (primary and secondary) in the schools and other settings (e.g., adolescent treatment). Examination of current research and available curriculum models, current identification and intervention approaches, and effective prevention programming. Historical and social contexts (e.g., Safe and Drug Free Schools and communities initiative) also included. May be taken for COUN or MHLTHSCI credit, but not both. PREREQ: Graduate standing.

COUN 550 (MHLTHSCI 568) DIAGNOSES, ASSESSMENT, AND TREATMENT PLANNING (2-0-2)(F)(Odd years). Examination of concepts of "mental disorders," DSM classification systems, and the diagnostic benefits and diagnostic problems inherent in such systems. An introduction and overview of the major psychopathological syndromes of adolescents and adults (especially in the area of Co-morbidity of Substance Abuse/Dependence and other DSM IV diagnoses) to facilitate appropriate use of assessment–diagnostic–treatment links (including treatment planning). May be taken for COUN or MHLTHSCI credit, but not both. PREREQ: PERM/INST.

COUN 567 (MHLTHSCI 567) CLINICAL SUPERVISION PRINCIPLES AND PRACTICE (1-0-1)(SU). Theory and skill development for practitioners who are or will be supervising interns and/or professionals in school, agency, and other settings. Topics include ethical issues in clinical supervision, models and best practices, documentation, and troubleshooting problematic dynamics. May be taken for COUN or MHLTHSCI credit, but not both. PREREQ: PERM/INST.

General Information
The Graduate Certificate in Gerontological Studies is an interdisciplinary program offered by the College of Education, Master of Arts in School Counseling (MASC) and Department of Kinesiology, College of Health Sciences, Master of Health Science Program (MHS), and College of Social Science and Public Affairs, Master of Social Work (MSW). The certificate program is administered by the Graduate Coordinators from the MASC, MHS, and MSW programs in conjunction with the Center for Study of Aging.

The postgraduate certificate is intended for students enrolled in any graduate degree program and for local professionals. The goal of the certificate program is to enable students to choose a unified, coherent group of courses in gerontological studies and related fields that improve their understanding of issues related to aging. The program curriculum is in compliance with the Core Principles and Outcomes of the Association for Gerontology in Higher Education.

Admission Requirements
The minimum requirements of admission to the certificate program are a baccalaureate degree from a regionally accredited college or university and admission to the Graduate College. In addition, admission will be based upon a review of the student’s transcripts, resume and letter of interest summarizing his or her background and motivation for enrolling in the certificate program.

Admission to the Graduate Certificate in Gerontological Studies does not guarantee
subsequent admission to any other certificate or graduate degree programs.

**Application Procedures**

An applicant should follow the general application procedures of the Graduate College for admission into a graduate program. The applicant must also submit a letter of interest and resume to the MASC, MHS or MSW Graduate Coordinator. Once the applicant's file is complete, it will be reviewed by the Gerontological Studies Admissions Committee members who will provide an admission recommendation to the Dean of the Graduate College. The Dean will make the final admission decision and notify the applicant.

**Certificate Requirements**

A minimum of 18 credits (9 credits of core and 9 credits from a concentration area) is required or the completion of the Graduate Certificate in Gerontological Studies.

Students who wish to enroll in courses other than those specified may do so by permission of Coordinator. Course prerequisites or permission of the instructor must also be met.

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