## UNIVERSITY SENATE AGENDA

# EBERLY AUDITORIUM 

February 24, 2009
3:30-5:00 p.m.

## Approval of Order

A. Approval of minutes of the meeting of January 27, 2009
B. Approval of current agenda items and order

## Reports and Announcements

A. President Atwater
B. Provost Intemann
C. Chairperson Broad
D. Vice Chairperson Moss

## Standing Committee Reports

A. Rules Committee
B. University-Wide Undergraduate Curriculum Committee
C. University-Wide Graduate Committee
D. University Development and Finance Committee
E. Student Affairs Committee
F. Academic Committee
G. Awards Committee
H. Noncredit Committee
I. Library and Educational Services Committee
J. Research Committee

## Senate Representative Reports

A. University Planning Council
B. Presidential Athletic Advisory Committee
C. Academic Computing Policy Advisory Committee

Chairperson

Sechrist / Hannibal

Piper/Baumer
Domaracki

## Rieg

Dugan/Novels
Ritchey
O’Neil
Jozefowicz
Sciulli D

## Representative

Wright
Domaracki
Chiarulli

Appendix Page(s)

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## New Business

Adjournment

# APPENDIX A <br> University-Wide Undergraduate Curriculum Committee <br> Co-Chairs Sechrist and Hannibal 

## FOR INFORMATION:

## 1. Liberal Studies Committee Report:

Approved the changes to the Liberal Studies section of the Bachelor of Science in EducationSpanish Education K-12 Spanish.

## FOR ACTION:

# 1. Department of Geosciences-New Courses, Course Number, Name and Catalog Description Changes, Course Revisions, Course Deletions, and Program Revisions 

## a. New Courses:

i. GEOS 201 Foundations of Geology

3c-3l-4cr
Prerequisite: Geoscience majors and minors, and Science or Science Education majors/minors, Anthropology, Geography and Regional Planning majors, or permission of instructor An introduction to the geological sciences including the study of the Earth's interior, plate tectonics, minerals and crystallography, igneous, sedimentary and metamorphic rocks and their cycling, geologic time, crustal deformation and earthquakes. Laboratory exercises will emphasize hands-on learning of basic geology skills including mineral and rock identification, understanding the geometry of subsurface geologic structures, and topographic and geologic map reading.

Rationale: Designed to replace the current GEOS 121/122 Physical Geology and Physical Geology Lab, which will be deleted. This is the first course that Geoscience majors in all tracks will take as part of their program and is part of a newly designed set of three introductory courses (GEOS 201, 202, 203). Design allows students to take GEOS 202 Quantitative Methods in the Geosciences concurrently with GEOS 201. Enrollment is limited to majors and minors listed or permission of instructor.
ii. GEOS 202 Quantitative Methods in the Geosciences
$2 \mathrm{c}-0 \mathrm{l}-2 \mathrm{cr}$
Prerequisite: Geoscience or Earth and Space Science majors and minors only, or permission of instructor; must be taken after or concurrently with GEOS 201
A quantitative introduction to the geological sciences including the study of the Earth's interior, plate tectonics, minerals and crystallography, igneous, sedimentary and metamorphic rocks and their cycling, geologic time, crustal deformation and earthquakes. This course will introduce students to foundational mathematical skills and techniques used in the geosciences.

Rationale: Designed so that it may be taken concurrently with or after GEOS 201 Foundations of Geology. This course will specifically introduce students to the quantitative side of the geosciences by reinforcing basic mathematical skills and using them in an applied manner to address geological problems. Enrollment limited to majors and minors.

## iii. GEOS 203 Surficial Processes

3c-31-4cr
Prerequisite: Grade of C or better in GEOS 201
Introduces students to the geological processes which shape the Earth's surface, from uplift and erosion of mountains to the transport of sediment and subsequent formation of sedimentary rocks. Focuses are on the interaction of underlying tectonic forces with the natural cycles of the Earth's atmosphere and hydrosphere and the subsequent evolution of both landscape and surface deposits.

Rationale: Designed as a core class for B.S. Geology/Geology Track and B.S. Geology/ Environmental Track majors, and as a controlled elective for Earth and Space Science Education majors and Geology minors. The content cannot be incorporated into an existing course as it extracts introductory elements from a number of sub-disciplines within the Geosciences. Course reflects shifting emphases in the broader field of the geosciences.

## iv. GEOS 301 Mineralogy and Petrology

## 3c-31-4cr

Prerequisites: Grade of C or better in GEOS 201 and 202
Introduces students to crystallography, crystal chemistry, optical properties and phase equilibria of minerals pertinent to geology, Earth resources and technology. Introduces the origins of igneous and metamorphic rocks based on a plate tectonic framework emphasizing melting and crystallization processes as well as metamorphic reactions. Laboratory exercises will focus on mineral and rock identification and interpretation as well as quantitative techniques such as x-ray diffractometry and optical microscopy.

Rationale: Combines content previously covered in GEOS 220 Mineralogy and GEOS 320 Igneous and Metamorphic Petrology. Will be a required upper-level course for students in Geology Track or as a controlled elective for students in the Environmental Geology Track.

## v. GEOS 401 Northern Rockies Seminar

$1 \mathrm{c}-01-1 \mathrm{cr}$
Prerequisites: Grade of C or better in GEOS 201 and 202; instructor permission required A seminar introduction to the geology and tectonic history of the northern Rocky Mountains. Includes instruction in the techniques of field mapping and geologic interpretation. Designed to prepare students specifically for GEOS 402.

Rationale: Designed as a prerequisite for GEOS 402 Northern Rockies Field Workshop in order to prepare students for the field-based exercises conducted in that class. One goal of the Geoscience Department's program revisions is to make field-based courses more accessible to students earlier in their IUP career.

## vi. GEOS 403 Newfoundland Seminar

1c-0l-1cr
Prerequisites: Grade of C or better in GEOS 201 and 202; instructor permission required
A seminar introduction to the geology and tectonic history of Newfoundland and Labrador. Includes instruction in the methods and concepts employed in delineation and genetic interpretation of stratigraphic units. Designed to prepare students specifically for GEOS 404.

Rationale: This course is designed as a prerequisite for GEOS 404 Newfoundland Field Workshop in order to prepare students for the field-based exercises conducted in that course.
vii. GEOS 405 American Southwest Seminar
$1 \mathrm{c}-0 \mathrm{l}-1 \mathrm{cr}$
Prerequisites: Grade of C or better in GEOS 201 and 202; instructor permission required A seminar introduction to the geology of the American Southwest. Includes examination of Colorado Plateau stratigraphy, Basin and Range tectonism and volcanic events in the eastern Sierra Nevada. Designed to prepare students specifically for GEOS 406.

Rationale: Designed as a prerequisite for GEOS 406 American Southwest Field Workshop in order to prepare students for the field-based exercises conducted in that class. Designed to provide a common knowledge base and skill set for students who may then take GEOS 406.
viii. GEOS 407 Carbonate Geology Seminar 1c-0l-1cr
Prerequisites: Grade of C or better in GEOS 201 and 202; instructor permission required A seminar introduction to the geological environment and history of the carbonate rocks and sediments found in Florida. Includes instruction in the techniques of field analysis and geologic interpretation. Designed to prepare students specifically for GEOS 408.

Rationale: Designed as a prerequisite for GEOS 408 Carbonate Geology Field Workshop in order to prepare students for the field-based exercises conducted in that class. Designed to provide a common knowledge base and skill set for students who may then take GEOS 408.

## b. Course Number and/or Catalog Description Changes or Title Changes

## i. Course Number and Catalog Description Change:

## Current Catalog Description:

GEOS 150 Geology of National Parks
3c-01-3cr
A study of geological processes and earth history as documented by the classical geological features of U.S. and Canadian national parks. Includes Badlands, Glacier, Grand Canyon, Great Smokies, Gros Morne, Mammoth Cave, Yellowstone, Yosemite, and others. Not open to Geoscience majors or minors.

## Proposed Catalog Description:

## GEOS 250 Geology of National Parks 3c-0l-3cr

Prerequisite: No Geoscience majors or minors
Explores geological processes and earth history using the classic rock formations of America's national parks. Includes national parks such as Arches, Bryce Canyon, Carlsbad Caverns, Grand Canyon, Great Smokies, Mammoth Cave, Shenandoah, Yellowstone, Yosemite, Zion and others.

## ii. Course Number and Catalog Description Change:

## Current Catalog Description:

GEOS 151 The Age of Dinosaurs
3c-01-3cr
A thorough introduction to dinosaurs and the world they inhabited. Topics include the most current theories regarding dinosaur biology (behavior, metabolism, evolution), ecology (greenhouse climate, associated
plants and animals), and extinction (asteroid impact, volcanism, climate change). Not open to Geoscience majors or minors.

## Proposed Catalog Description:

GEOS 251 The Age of Dinosaurs

## 3c-01-3cr

Prerequisite: No Geoscience majors or minors
A thorough introduction to dinosaurs and the world they inhabited. Topics include the most current theories regarding dinosaur biology (behavior, metabolism, evolution), ecology (greenhouse climate, associated plants and animals), and extinction (asteroid impact, volcanism, climate change).

Rationale: The changes in course numbers for these two courses are proposed to be consistent with the new course numbering system. The stipulation that Geoscience majors and minors may not take this class has been moved to the Prerequisite line to be consistent.

## iii. Course Number and Catalog Description Change:

## Current Catalog Description:

## GEOS 221 Physical Resources of the Earth

3c-01-3cr
An introduction to mineral, energy, and water resources of the earth; genesis of ore depositions; exploration, exploitation, and utilization of resources; impact of exploitation of resources on the environment and on humankind. Includes field trips which occur on weekends.

## Proposed Catalog Description:

GEOS 252 Physical Resources of the Earth 3c-01-3cr
Prerequisite: No Geoscience majors or minors
An introduction to mineral, energy, and water resources of the earth; genesis of ore depositions; exploration, exploitation, and utilization of resources; impact of exploitation of resources on the environment and on humankind.

Rationale: The change in number is proposed to be consistent with the Department's new numbering system. The exclusion of majors and minors prevents these students from taking this course for major/minor credit in the revised program. The mention of field trips is eliminated because to the best of the faculty's knowledge, there never were field trips with this course.

## iv. Course Number Change:

## Current Course Number: GEOS 226 Forensic Geology <br> Proposed Course Number: GEOS 253 Forensic Geology

Rationale: The change in course number is proposed to be consistent with the Geoscience Department's new course numbering system.

## v. Course Number and Catalog Description Change:

## Current Catalog Description:

GEOS 333 Soils and Soil Geochemistry 2c-31-3cr
Prerequisite: GEOS 220
An introduction to the formation, classification, and geochemistry of soils. Emphasizes geology, climate, hydrology, and plant-soil interactions to investigate soil evolution and fertility, nutrient dynamics, and the role of soils in the global carbon cycle. Laboratory topics include assessment of soil structure, mineralogy, chemistry, and fertility as well as quantitative treatment of carbon cycling in soils. Includes field trips which may occur on weekends.

## Proposed Catalog Description:

## GEOS 313 Soils and Soil Geochemistry

## $2 \mathrm{c}-31-3 \mathrm{cr}$

Prerequisites: Grade of C or better in GEOS 201 and 202
An introduction to the formation, classification, and geochemistry of soils. Emphasizes geology, climate, hydrology, and plant-soil interactions to investigate soil evolution and fertility, nutrient dynamics, and the role of soils in the global carbon cycle. Laboratory topics include assessment of soil structure, mineralogy, chemistry, and fertility as well as quantitative treatment of carbon cycling in soils. Includes field trips which may occur on weekends.

Rationale: The change in course number and the prerequisite course is proposed to be consistent with the Geoscience Department's new course numbering system. The prerequisite change reflects the creation of a new introductory sequence GEOS 201, 202, 203 and the reconfiguring of courses.

## vi. Course Number and Catalog Description Change:

## Current Catalog Description:

## GEOS 327 Geomorphology

## 2c-31-3cr

Prerequisites: GEOS 121, 131
A study of the origin of the earth's landforms, including relationship of geologic structure to landform types and role of geomorphic processes in landscape development.

## Proposed Catalog Description:

GEOS 354 Geomorphology

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2 \mathrm{c}-31-3 \mathrm{cr}
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Prerequisites: Grade of C or better in GEOS 202 and 203
A study of the origin of the earth's landforms, including relationship of geologic structure to landform types and role of geomorphic processes in landscape development.

Rationale: The change in course number is proposed to be consistent with the Geoscience Department's new course numbering system. The prerequisite change (from GEOS 121, 131 to Grade of C or better in GEOS 202 and GEOS 203) reflects the creation of a new introductory Geoscience sequence GEOS 201-203.
vii. Course Number and Catalog Description Change:

## Current Catalog Description:

GEOS 411 Sedimentary Petrology 2c-31-3cr
Prerequisite: GEOS 321 or instructor permission
The study of sediments and sedimentary rocks with emphasis on interpreting ancient environments of deposition utilizing sieve analysis, hand lens, and petrographic microscope. Includes field trips which may occur on weekends.

## Proposed Catalog Description:

GEOS 355 Sedimentary Petrology 2c-31-3cr
Prerequisites: Grade of C or better in GEOS 202 and 203
The study of sediments and sedimentary rocks with emphasis on interpreting ancient environments of deposition utilizing sieve analysis, hand lens, and petrographic microscope. Includes field trips which may occur on weekends.

Rationale: The change in course number is proposed to be consistent with the Geoscience Department's new course numbering system. The prerequisite change reflects the creation of a new introductory Geoscience sequence GEOS 201-203. Material that was formerly required in GEOS 220 Mineralogy will now be taught as part of GEOS 201 Foundations of Geology. The old prerequisite listed was the incorrect course number-it should have been GEOS 220 Mineralogy.

## viii. Course Number, Course Title, and Catalog Description Change:

## Current Catalog Description:

## GEOS 336 Geology of Northern Rockies

var-3cr
Prerequisite: Instructor permission required, at least 14cr of Geoscience courses recommended A field study of the major geologic features and relationships involved in the development of the northern Rocky Mountains. National Park and Monument areas of South Dakota, Wyoming and Montana are included among the areas investigated. (Three weeks, taught in the summer only).

## Proposed Catalog Description:

GEOS 402 Northern Rockies Field Workshop
var-3cr
Prerequisite: GEOS 401; instructor permission required
A field study of the major geologic features and relationships involved in the development of the northern Rocky Mountains. National Park and Monument areas of South Dakota, Wyoming and Montana are included among the areas investigated. (Three weeks, taught in the summer only).

## ix. Course Number, Course Title, and Catalog Description Change:

## Current Catalog Description:

## GEOS 337 Geology of Newfoundland <br> var-3cr

Prerequisite: Instructor permission required, at least 14cr of Geoscience courses recommended A field course designed to utilize the exceptional and diverse geologic features of Newfoundland for instruction of departmental majors and minors in the tectonic analysis utilizing sedimentologic, stratigraphic, and paleontologic observations. (Three weeks, taught in the summer only).

## Proposed Catalog Description:

GEOS 404 Newfoundland Field Workshop var-3cr
Prerequisites: GEOS 403; instructor permission and valid passport required
A field course designed to utilize the exceptional and diverse geologic features of Newfoundland for instruction of departmental majors and minors in the tectonic analysis utilizing sedimentologic, stratigraphic, and paleontologic observations. (Three weeks, taught in the summer only).
x. Course Number, Course Title, and Catalog Description Change:

## Current Catalog Description:

GEOS 338 Geology of American Southwest var-3cr
Prerequisite: Instructor permission required, at least 14cr of Geoscience courses recommended
A field study of the major geologic features and relationships exposed in the American Southwest, including the Colorado Plateau, the Rio Grande Rift, Death Valley, and parts of the Southern Rocky Mountains.
(Three weeks, taught in the summer only).

## Proposed Catalog Description:

## GEOS 406 American Southwest Field Workshop var-3cr

Prerequisite: GEOS 405; instructor permission required
A field study of the major geologic features and relationships exposed in the American Southwest, including the Colorado Plateau, the Rio Grande Rift, Death Valley, and parts of the eastern Sierra Nevada in California. (Three weeks, taught in the summer only).

## xi. Course Number, Course Title, and Catalog Description Change:

## Current Catalog Description:

GEOS 441 Carbonate Geology-Florida var-3cr
Prerequisite: 17 cr geology courses or written instructor permission
Two to three weeks of field study in Florida Keys. Conducted from base camp in Florida Keys and consists of both land and water work as the different carbonate environments in the Keys, Florida Bay, and the Atlantic reef tract are studied.

## Proposed Catalog Description

## GEOS 408 Carbonate Geology Field Workshop var-3cr

Prerequisite: GEOS 407; instructor permission
Two to three weeks of field study in Florida Keys and at Andros Island, Bahamas. Conducted from base camps in Florida Keys and at Forfar Biological Field Station (Bahamas) and consists of both land and marine studies of the different carbonate environments in the Keys, Florida Bay, and along the Atlantic reef tract. Valid passport and basic swimming skills required.

Rationale for GEOS 402, 404, 406, and 408: Seventeen or 14 credits of Geoscience courses were previously recommended with the final decision as to whether a student could take the course left up to the instructor. As one goal of the Geoscience Department's proposed program revisions is to make these field courses more accessible to students earlier in their IUP careers, we are removing this recommendation. To prepare students for the field course we are adding as a prerequisite a one-credit pre-trip seminar (GEOS 401, 403, 405, or 407). These seminars will introduce the regional geology of the field area, discuss controversies in the interpretation of the region's geologic history, and develop the skills necessary to successfully complete the field exercises conducted on the trip. The change in course numbers is proposed to be consistent with the department's new course numbering system.

## xii. Course Number Change

$\begin{array}{ll}\text { Current Course Number: } & \text { GEOS } 380 \text { Research Methods in the Geosciences } \\ \text { Proposed Course Number: } & \text { GEOS } 470 \text { Research Methods in the Geosciences }\end{array}$
Proposed Course Number: GEOS 470 Research Methods in the Geosciences
Rationale: The change in course number is proposed to be consistent with the Geoscience Department's new course numbering system.

## c. Course Revisions some with other changes

## i. Course Revision, Course Number Change, and Catalog Description Change

## Current Catalog Description:

GEOS 325 Structural Geology
2c-3l-3cr
Prerequisites: GEOS 131 and 132 or instructor permission
The study of primary structures, contacts, rock mechanics, joints, faults, folds, foliation, and lineation. Includes work with geologic maps and structure sections. Brunton compass, orthographic and stereographic projections. Includes field trips which may occur on weekends.

## Proposed Catalog Description:

GEOS 302 Structural Geology
3c-3l-4cr
Prerequisites: Grade of C or better in GEOS 201 and 202
Study of the geometry, kinematics and dynamics of the primary structures of the Earth's crust. Focuses on the geometric relations between geologic contacts and surface topography, the description of primary structures such as foliations, lineations, folds and fractures, the constraints on crustal motions, and the relation between stress and strain. Students are introduced to the tools of
rock mechanics and spherical geometry. The laboratory includes extensive work with geologic maps and profiles, the Brunton compass, and orthographic and stereographic projections. Includes field trips which may occur on weekends.

Rationale: The content within the discipline of Structural Geology has expanded recently in response to the development of new scientific tools. Of particular significance in this regard is the development of satellite surveying capabilities that allow scientists to observe contemporary movements of Earth's surface. This, in conjunction with the development of new geochemical dating methods, has led to the expansion of Structural Geology to include what have become known as Neotectonics and Active Tectonics. These sub-disciplines address dynamic aspects of Earth’s architecture. Moreover, modern Structural Geology teaching typically includes more content on earthquake processes (from seismology) than it used to.

## ii. Course Revision, Course Number Change, and Catalog Description Change

## Current Catalog Description:

GEOS 326 Field Geology
2c-3l-3cr
Prerequisite: GEOS 325
Principles and techniques of field geology with emphasis on developing field skills using Brunton compass, aerial photographs, topographic maps, altimeter, Jacob staff, and rock color charts. Field projects involve techniques of field note-taking, measuring and describing stratigraphic sections, geologic field mapping and analysis, construction of geologic maps and structure sections, and report writing. Includes field trips which may occur on weekends.

## Proposed Catalog Description:

## GEOS 303 Field Geology

## 3c-3l-4cr

Prerequisites: Grade of C or better in GEOS 201 and 202
Principles and techniques of field geology with emphasis on developing field skills using a Brunton compass, topographic maps, Jacobs staff, stereographic projections, field computers and the Global Positioning System. Field projects involve techniques of field note-taking, measuring and describing stratigraphic sections, bedrock mapping and analysis, environmental assessment, construction of geologic maps and structure sections. Includes field trips which may occur on weekends.

Rationale: The scope of Field Geology has expanded in recent years for a number of reasons: (1) the recognition that many Geoscience problems require multi-disciplinary approaches (e.g., soil science, civil engineering, geochemistry, geodesy), and (2) the increasing availability of high-tech tools that can be used in the field. In the past this course has focused only on traditional field skills such as mapping and geologic report preparation. We will maintain this focus and will add content on satellite navigation and geodesy, the analysis of data in the field using field-capable computing technology, the analysis of geometric data using stereographic projections in the field, and the field methods of environmental geology.

## iii. Course Revision and Catalog Description Change:

## Current Catalog Description:

GEOS 310 Environmental Geology
2c-3l-3cr
Prerequisite: 8cr in geology or permission
The application of geologic information to the accommodation and reduction of natural hazards, to land-use planning, and to the utilization of earth materials. Includes field trips which occur on weekends.

## Proposed Catalog Description:

GEOS 310 Environmental Geology

## 3c-3l-4cr

Prerequisites: Grade of C or better in GEOS 202 and 203
The study of human interactions with the Earth from a geological perspective. Emphasis is placed on the scientific concepts necessary to understand these interactions, including groundwater flow, soil formation and destruction, waste disposal, geologic hazards, stream hydrology, climate change, and natural resources. Contemporary environmental issues are explored through primary scientific literature and news media. Includes field trips which may occur on weekends.

Rationale: The content of the subdiscipline of Environmental Geology has expanded recently largely in response to two developments. First, the content related to geologic hazards has grown because of the rapid development of Global Positioning System capabilities and satellite image analysis tools. As such, the means by which these methods are used to address seismic and volcanic hazards is an important addition to this course. Second, the recognition of coupling between Earth's systems, for example between the atmosphere and hydrosphere, has had a profound impact on our understanding of many contemporary environmental issues. To maintain a modern curriculum, we are required to add subject material and consequently classroom hours distributed across the wide range of topics covered in this course.

## iv. Course Revision, Course Number Change, and Catalog Description Change

## Current Catalog Description:

GEOS 332 Geochemistry 2c-31-3cr
Prerequisites: CHEM 111-112, GEOS 121-122/123, or permission
An introduction to low-temperature chemistry of the earth's surface and near-surface; includes discussions of chemical activity, solution chemistry, organic geochemistry, trace elements, isotopes, and the chemistry of natural waters.

Proposed Catalog Description:
GEOS 311 Geochemistry 3c-31-4cr
Prerequisites: CHEM 111, Grade of C or better in GEOS 201 and 202
An introduction to low-temperature chemistry of the earth's surface and near-surface; includes discussions of chemical activity, solution chemistry, organic geochemistry, trace elements, stable and radiogenic isotope geochemistry, and the chemistry of natural waters.

Rationale: Geochemistry is one of the fastest growing fields in the geosciences with many important problems of the modern age being quantified through geochemical studies of various Earth systems. This
course has traditionally focused on the geochemistry of natural waters and stable isotope geochemistry. The new course will maintain this focus plus add substantially to depth of coverage of stable isotope geochemistry, and add radiogenic isotope geochemistry to the curriculum. To present this material adequately, a third lecture hour per week is necessary.
v. Course Revision, Course Number Change, and Catalog Description Change

## Current Catalog Description:

## GEOS 331 Hydrogeology 2c-3l-3cr

Prerequisites: MATH 121-122, GEOS 121-122/123, or permission
An overview of groundwater geology, including flow equations, graphical solutions to flow problems, and computer modeling of flow systems, as well as the geotechnical and social implications of groundwater utilization. Includes field trips which occur on weekends.

## Proposed Catalog Description:

GEOS 312 Hydrogeology 3c-01-3cr
Prerequisites: Grade of C or better in GEOS 201 and 202; MATH 121 or 125 or instructor permission. An overview of groundwater geology, including flow equations, graphical solutions to flow problems, and computer modeling of flow systems, as well as the geotechnical and social implications of groundwater utilization. Field trips may occur on weekends.

Rationale: The field of hydrogeology is going through immense changes due to recent technological innovations, particularly in the area of groundwater remediation or cleanup.
It is no longer economically feasible or technically possible for IUP to offer a truly hands-on laboratory to accompany this course. This will be replaced by a manual of problems based on real groundwater pollution sites where all of the original data is provided in Excel format on an accompanying CD-ROM. The change in technology has eliminated the need for working hydrogeologists to use and manipulate differential equations as part of their daily work. Students will still complete both calculus courses. However, there is no longer a need require the entire sequence of calculus as prerequisites.

## vi. Course Revision, Course Title Change, and Catalog Description Change

## Current Catalog Description:

GEOS 341 Solar System 2c-31-3cr
Prerequisites: MATH 121 and PHYS 111
Fundamentals of astronomy, with emphasis on observational methods, mechanics, and origin of the solar system and spatial relationship of the solar system to the other members of the universe.

## Proposed Catalog Description:

## GEOS 341 Planetary Geology

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3 \mathrm{c}-31-4 \mathrm{cr}
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Corequisites: MATH 121, PHYS 111 or instructor permission
Materials, motions, and evolution of the solar system, with emphasis on observational methods, mechanics, spatial relationships, geology, and origin of the solar system.

Rationale: Currently a requirement for the Earth and Space Science Education major, and most of the students who take it are in this major. Increasing the emphasis of geologic topics will make this course appropriate for geology and environmental geology majors as well. Adding one lecture hour per week will allow time for more in-depth learning activities, specifically the in-depth study of one or more problems or issues in planetary geology. Students will utilize available planetary images, spectral data, and other information to reconstruct the geologic history of a class of features, a region of a planet, or a minor body (asteroid or moon).

## vii. Course Revision and Catalog Description Change:

## Current Catalog Description:

GEOS 342 Stellar Astronomy 2c-31-3cr
Prerequisites: MATH 121 and PHYS 111
Fundamentals of astronomy, with emphasis on sun, stars, galaxies, the sidereal universe, and use of spectroscopy for gathering astronomical data.

## Proposed Catalog Description:

## GEOS 342 Stellar Astronomy <br> 3c-3l-4cr

Prerequisites: MATH 121, PHYS 111 or instructor permission
Evolution and nature of objects in the universe, including the Sun, stars, and galaxies. Study of methods for gathering astronomical data on motion, distance, and composition.

Rationale: Currently a requirement for the Earth and Space Science Education major. Incorporating the use of the planetarium and other technologies for teaching will reinforce significant concepts in stellar astronomy. The extra lecture hour will permit additional in-depth teaching and learning including material from the former GEOS 350 Operation of the Planetarium.

## viii. Course Revision, Course Number Change, and Catalog Description Change

## Current Catalog Description:

GEOS 131 Historical Geology
3c-01-3cr
Prerequisites: GEOS 121-122
Corequisite: GEOS 132
An introduction to the history of Earth, including the fossil record and the history of biologic evolution. Topics also include the growth and tectonic interactions of oceans and continents and the physical evolution of the earth's atmosphere, lithosphere, and hydrosphere. Designed to prepare majors and minors for upperlevel geology classes.

## Proposed Catalog Description:

## GEOS 351 Historical Geology

3c-3l-4cr

Prerequisites: Grade of C or better in GEOS 202 and 203
An introduction to the historical development of geology as a scientific discipline, and a review of the major global events in Earth's history and the methods employed in reconstructing the geologic history of regions and continents.

Rationale: The purpose of Historical Geology was to provide students new to the major/minor some background in the history of geology as a discipline, introduce them to the tools and concepts employed by geologists, and review some of the major events in the history of our region and our planet. In the new Geoscience Department curricula, that basic skill set will be provided in GEOS 201-203. Historical Geology will now be a more specialized course in which the students will utilize the skill set developed in the expanded 10-credit 201-203 sequence, and other Geoscience courses, to solve more advanced and intricate problems in geology.

## ix. Course Revision, Title and Number Change, and Catalog Description Change:

## Current Catalog Description:

## GEOS 412 Stratigraphy 2c-31-3cr

Prerequisite: GEOS 411 or instructor permission
Principles and processes involved in development and description of stratified rock sequences, principles and problems of correlation, and selected stratigraphic problems. Includes field trips which may occur on weekends.

## Proposed Catalog Description:

## GEOS 352 Sedimentation and Stratigraphy 3c-31-4cr

Prerequisites: Grade of C or better in GEOS 202 and 203
An introduction to the concepts and methods applied in defining and establishing the spatial and temporal relationships of stratigraphic units - the material packages of sediment/rock and the intervals of time that are derived from them. Includes field trips that may occur on weekends.

Rationale: Revisions in the required coursework for the B.S. in Geology, along with recent changes in the schedule of upper level course offerings require expansion of the content in each of the courses dedicated to sedimentary rocks and surficial processes. In the new curriculum, fewer courses in sedimentary geology are required, so each must cover a broader range of topics to ensure adequate coverage of critical components. The 4-credit upgrade is necessary to incorporate a number of topics that were not previously part of GEOS 412 Stratigraphy.

## x. Course Revision, Number Change, and Catalog Description Change:

## Current Catalog Description:

## GEOS 330 Paleontology 2c-31-3cr

Prerequisite: GEOS 131 or instructor permission
A study of the morphology, evolution, geologic significance, and paleoecology of fossil organisms. Includes field trips which may occur on weekends.

## Proposed Catalog Description:

## GEOS 353 Paleontology

## 3c-31-4cr

Prerequisites: Grade of C or better in GEOS 201 and 202
An introduction to the study of prehistoric life, the process and products of organic evolution, and the utility of fossils as tools for solving geological and paleobiological problems. Includes field trips which may occur on weekends.

Rationale: The field of paleontology has grown and in recent years the number of Earth and Space Science Education majors who enroll in Paleontology has increased to where those students commonly make up at least half of the class; the revised course has been added to the required courses for the Earth and Space Science Education majors. The course has been revised to provide the additional time needed to incorporate considerable material on vertebrate paleontology (dinosaurs in particular), the evolution of land plants, and a variety of relatively new and exciting subdisciplines. To present this material adequately, a third lecture hour per week is necessary. Additionally, paleontology has become much more quantitative and the course has been redesigned to include numerous mathematical exercises.

## xi. Course Revision, Number and Title Change, and Catalog Description Change:

## Current Catalog Description:

## GEOS 361 Physical Oceanography

3c-2l-3cr
Prerequisites: Undergraduate level MATH 121 Minimum Grade of D or Undergraduate level MATH 121 Minimum Grade of D and Undergraduate level PHYS 111 Minimum Grade of D or Undergraduate level PHYS 111 Minimum Grade of D.
Introduction to physical, chemical, geological, and biological nature of ocean: topography, submarine geology, and bottom deposits. Includes field trip(s) which may occur on weekend(s).

## Proposed Catalog Description:

GEOS 370 Oceanography 3c-31-4cr
Prerequisites: Grade of C or better in GEOS 201 and 202
An introduction to physical, chemical, geological, and biological nature of the ocean: bathymetry, submarine geology, and sedimentary deposits. Includes field trip(s) which may occur on weekend(s).

Rationale: This course has traditionally focused on the physical processes that happen in the oceans with very little time devoted to the interactions the oceans have with other components of global change. The new course will maintain this original focus but woven throughout are examples and exercises designed to
show the "big picture" of how oceans interact with the atmosphere, lithosphere, and biosphere. To present this material adequately, a third lecture hour per week is necessary. The prerequisite change reflects the creation of the new introductory courses GEOS 201-203. The elimination of PHYS 111 and MATH 121 as prerequisites reflects the fact that the essential components of these courses will be taught in GEOS 202 Quantitative Methods in the Geosciences. The change in course number is proposed to be consistent with the Geoscience Department's new course numbering system.

## xii. Course Revision, Title Change and Catalog Description Change:

## Current Catalog Description:

GEOS 371 Meteorology I

## 2c-3l-3cr

Prerequisite: One year of physical science or physics
An introduction to meteorological sciences; composition and structure of the atmosphere; radiation principles; elementary thermodynamics and heat balance.

## Proposed Catalog Description:

GEOS 371 Meteorology 2c-31-3cr
Prerequisites: Grade of C or better in GEOS 201 and 202
Introduction to meteorological sciences; composition and structure of the atmosphere; radiation principles; elementary thermodynamics and heat balance.

Rationale: The field of meteorology encompasses a wide variety of atmospheric science including heat and energy in the atmosphere, weather measurement and prediction, and global climate change. In previous years, more emphasis was placed on measuring/predicting weather. In the revised course, students will be exposed to this content but more emphasis will be placed on the global pattern of weather and longer-term climatic changes.

## xiii. Course Revision and Catalog Description Change:

## Current Catalog Description:

## GEOS 480 Geoscience Seminar var-1cr

Prerequisite: GEOS 380, senior standing
For seniors majoring in some aspect of geoscience. The seminar 1) provides an opportunity to prepare, formally present, and defend a scientific paper based either on his/her own research or on a topic chosen with the approval of instructor and 2) provides opportunity to discuss topics presented by other students, faculty, or guests.

## Proposed Catalog Description:

GEOS 480 Geoscience Seminar 2c-01-2cr
Prerequisite: GEOS 470, Senior standing
For seniors majoring in some aspect of geoscience. The seminar 1) provides an opportunity to prepare, formally present, and defend a scientific paper based either on his/her own research or on a topic chosen
with the approval of instructor and 2) provides opportunity to discuss topics presented by other students, faculty, or guests.

Rationale: Graduating seniors are required to prepare, present and defend a formal research presentation as part of their graduating requirements. Requires considerable one-on-one time with faculty mentors to prepare individual research results. In addition, students are asked to collaboratively critique each other through weekly practice sessions. A two-hour credit load more fairly represents the work associated with this course than was previously given to students. The prerequisite number reflects the change in number of the prerequisite course.

## d. Course Deletions:

i. GEOS 111 Earth Science for Educators I
ii. GEOS 112 Earth Science for Educators I Lab
iii. GEOS 113 Earth Science for Educators II
iv. GEOS 114 Earth Science for Educators II Lab

Rationale: GEOS 111, 113 and their accompanying labs GEOS 112, 114 were originally designed for two student cohorts: Education majors in the General Science Education degree program and Education majors in Chemistry and Physics. The General Science Education degree program is in the process of being placed into moratorium because the state certification it prepared students for (General Science) is no longer required for teaching general science courses at the middle-school level. This change has eliminated a majority ( $90-95 \%$ ) of the $12-15$ students who normally enrolled in these course sequences. Only a few chemistry (2-3) and physics (0-1) education majors currently enroll in this course per semester, and on their own, they do not provide a sufficient enrollment to allow the classes to run.

## v. GEOS 121 Physical Geology vi. GEOS 122 Physical Geology Lab

Rationale: Material covered in these courses will be covered in a new course GEOS 201 Foundations of Geology which is being created as part of a department curriculum restructuring.

## vii. GEOS 123 Applied Mathematics in Geosciences

Rationale: GEOS 123 Applied Mathematics in the Geosciences was an experimental supplemental lab section intended to increase the mathematical literacy of freshman year Geoscience majors by showing them how calculus could be used to analyze geologically relevant problems. Unfortunately, the majority of students entering the Geology and Environmental Geology tracks did not place directly into calculus, and therefore could not take this section as it was designed to be taken. The course was offered only once.

## viii. GEOS 132 Historical Geology Laboratory

Rationale: The majority of the material covered in this course is being incorporated into the revised GEOS 351 Historical Geology. Essential foundational components of this lab will be incorporated into new courses.

## ix. GEOS 141 Introduction to Ocean Science

Rationale: This course has not been taught for more than five years and is no longer considered an essential component of our curricular offerings.

## x. GEOS 220 Mineralogy

Rationale: Material covered in this course will be combined with material from GEOS 320 Igneous and Metamorphic Petrology into a new course GEOS 301 Mineralogy and Petrology. This change reflects a deemphasis of certain curricular components of both of these courses such that it is now possible to teach them in a single 3c-3l-4cr course.

## xi. GEOS 320 Igneous and Metamorphic Petrology

Rationale: Material covered in this course will be combined with material from GEOS 220 Mineralogy into a new course GEOS 301 Mineralogy and Petrology.

## xii. GEOS 350 Operation of the Planetarium

Rationale: This course dates back to the origin of the IUP Geoscience program in the 1960s. Since that time the planetarium has shifted from the premier new teaching technology in space science education to one of many technologies. Computers are common in science teaching, and schools are more likely to purchase and use modern, automated telescopes than build a planetarium facility. Rather than specific preparation for operating a planetarium, this course has become one where students practice presenting science lessons using appropriate technology. The essential content of this course will be incorporated into GEOS 342 Stellar Astronomy.

## xiii. GEOS 440 Subsurface Geology

Rationale: GEOS 440 Subsurface Geology was not a core course that introduced new geological concepts, but rather a course that took concepts students had already learned and applied them specifically to the kinds of problems faced in the exploration for fossil fuels (coal, oil and gas). This course prepared students very specifically to work in the natural resource industries, particularly those headquartered in the local area such as R\&P Coal and S.W. Jack Drilling Company. Since the only faculty member in the department who had expertise in fossil fuel exploration has recently retired, the Geoscience Department no longer has the resources needed to offer this course. In addition, we are in the process of completely revamping our curriculum to emphasize directed problem-solving in every upper-level majors course, so that applied courses such as GEOS 440 will no longer be needed to prepare students for employment.

## e. Program Revisions

## Current Program: <br> Bachelor of Science- Geology/Geology Track

Liberal Studies: As outlined in Liberal Studies section with the following specifications:
Mathematics: MATH 121 or 123
Natural Science: CHEM 111-112 or CHEM 113-114
Liberal Studies Electives: 4cr, MATH 122 or 124, no courses with GEOS prefix

## Major:

Geoscience Core:

| GEOS 121 | Physical Geology | 3 cr |
| :--- | :--- | :--- |
| GEOS 122 | Physical Geology Laboratory | 1 cr |
| GEOS 131 | Historical Geology | 3 cr |
| GEOS 132 | Historical Geology Laboratory | 1 cr |
| GEOS 220 | Mineralogy | 3 cr |
| GEOS 320 | Igneous and Metamorphic Petrology | 3 cr |
| GEOS 325 | Structural Geology | 3 cr |
| GEOS 326 | Field Geology | 3 cr |
| GEOS 380 | Research Methods in the Geosciences | 2 cr |
| GEOS 411 | Sedimentary Petrology | 3 cr |
| GEOS 412 | Stratigraphy | 3 cr |
| GEOS 480 | Geoscience Seminar | 1 cr |

GEOS 480 Geoscience Seminar 1 cr

## Geology Track:

GEOS 330 Paleontology
GEOS 362 Plate Tectonics
PHYS 111 Physics I Lecture
PHYS 121 Physics I Lab
PHYS 112 Physics II Lecture
PHYS 122 Physics II Lab

## Controlled Electives:

Select three courses from the following:
GEOG 316, MATH 216, GEOS courses 300 or above (1)
Other Requirements:
Foreign Language Intermediate-Level (2)

## Free Electives:

## Total Degree Requirements:

(1) Up to 3cr of a summer field camp, internship, or independent study, all of which must be approved by the department, may be applied controlled electives.
(2) 6 cr of computer language may substitute for the foreign language requirement: COSC 110 and COSC 310 (recommended), or other higherlevel COSC courses with department permission in consultation with the Computer Science Department.

## Proposed Program:

Bachelor of Science- Geology/Geology Track

50 Liberal Studies: As outlined in Liberal Studies section 50 with the following specifications:
Mathematics: MATH 121
Natural Science: CHEM 111-112 or CHEM 113-114
Liberal Studies Electives: 4cr, MATH 122, no courses with GEOS prefix

## 29 Major:

Required Courses:
GEOS 201 Foundations of Geology 4cr
GEOS 202 Quantitative Methods in the Geosciences 2cr
GEOS 203 Surficial Processes 4cr
GEOS 301 Mineralogy and Petrology 4cr
GEOS 302 Structural Geology 4cr
One of the following: (1)
GEOS 303, 401-402, 403-404, 405-406, 407-408 4cr
GEOS 470 Research Methods in the Geosciences 2cr
GEOS 480 Geoscience Seminar 2cr
PHYS 111 Physics I Lecture 3cr
PHYS 121 Physics I Lab 1cr
PHYS 112 Physics II Lecture 3cr
PHYS 122 Physics II Lab 1cr
23-24 Controlled Electives: 19cr
Select 19cr from the following list: (2)
One 100- or 200-level GEOS course
Any 300-level GEOS course
Any 400-level GEOS course
BIOL 111, 112
CHEM 231, 232, 322, 323, 341
GEOG 316, 415
MATH 216 or 217, 241
PHYS 342
COSC 250, 310, 362
0-6 Other Requirements: 0-6
$0-6 \mathrm{cr} \quad$ Foreign Language Intermediate-Level (3) 0-6cr
11-18 Free Electives 11-17
120 Total Degree Requirements: 120

## Current Program:

## Bachelor of Science- Geology/Environmental Track

Liberal Studies: As outlined in Liberal Studies section
with the following specifications:
Mathematics: MATH 121 or 123
Natural Science: CHEM 111-112 or CHEM 113-114
Liberal Studies Electives: 7cr, MATH 122 or 124, PHYS 111, no courses with GEOS prefix

## Major:

## Geoscience Core

GEOS 121 Physical Geology
GEOS 122 Physical Geology Laboratory
GEOS 131 Historical Geology
GEOS 132 Historical Geology Laboratory
GEOS 220 Mineralogy
GEOS 320 Igneous and Metamorphic Petrology
GEOS 325 Structural Geology
GEOS 326 Field Geology
GEOS 380 Research Methods in the Geosciences
GEOS 411 Sedimentary Petrology
GEOS 412 Stratigraphy or
GEOS 327 Geomorphology
GEOS 480 Geoscience Seminar
Environmental Track:
BIOL 111 Principles of Biology I
GEOS 310 Environmental Geology
GEOS 331 Hydrogeology
GEOS 332 Geochemistry
PHYS 121 Physics I Lab

## Controlled Electives:

Select three courses from the following: (3)
Biology Electives: BIOL 112, 250, 321, 322, 362
Chemistry Electives: CHEM 231, 232, 322, 323, 341
Allied Fields: GEOS courses 300 or above (4), COSC 250,
GEOG 316, 415, MATH 216, PHYS 112-122, SAFE 101
Other Requirements:
Foreign Language Intermediate-Level (5)

## Free Electives:

## Total Degree Requirements:

(1) Some courses have prerequisites that may be taken as free electives.
(2) Students who plan to pursue graduate studies are encouraged to take PHYS111-122
(3) Select one each from the Biology and Chemistry electives lists and a third from any of the three elective lists.
(4) Up to 3cr of a summer field camp, internship, or independent study, all of which must be approved by the department, may be applied to the controlled electives.
(5) 6 cr of computer language may substitute for the foreign language requirement: COSC110 and COSC310 (recommended), or other higherlevel COSC courses with department permission in consultation with the Computer Science Department.

## Proposed Program:

Bachelor of Science- Geology/Environmental Track
53 Liberal Studies: As outlined in Liberal Studies section $\mathbf{5 0}$ with the following specifications:
Mathematics: MATH 121
Natural Science: CHEM 111-112 or CHEM 113-114
Liberal Studies Electives: 4cr, MATH 122, no courses
with GEOS prefix
29 Major:
Required Courses:
GEOS 201 Foundations of Geology 4cr
GEOS 202 Quantitative Methods in the Geosciences 2cr
GEOS 203 Surficial Processes 4cr
GEOS 310 Environmental Geology or
GEOS 311 Geochemistry
4cr
GEOS 312 Hydrogeology 3cr
One of the following: (1)
GEOS 303, 401-402, 403-404, 405-406, 407-408 4cr
GEOS 470 Research Methods in the Geosciences 2cr
GEOS 480 Geoscience Seminar 2cr
BIOL 111 Principles of Biology I 4cr
PHYS $111 \quad$ Physics I Lecture $\quad$ 3cr
PHYS 121 Physics I Lab 1cr
22-23 Controlled Electives: 20cr
4cr Select 20cr from the following list: (2)
3cr One 100- or 200-level GEOS course
3cr Any 300-level GEOS course
3cr Any 400-level GEOS course
1cr BIOL 112, 250
8-9cr CHEM 231, 232, 322, 323, 341
GEOG 316, 415
MATH 216 or 217, 241
PHYS 112-122, 342
COSC 250, 310, 362
$0-6 \mathrm{cr} \quad$ Foreign Language Intermediate-Level (3)
9-16 Free Electives
(1) Up to 4cr of a summer field camp, internship, or independent study, all of which must be approved by the department, may substitute for GEOS 303 or a Geoscience Field Workshop.
(2) Only one Geoscience Field Workshop (including prerequisite 1cr Seminar) may be applied toward controlled electives. Credits from up to two non-GEOS courses may be applied toward controlled electives.
(3) 6 cr of computer language may substitute for the foreign language requirement: COSC 110 and 210 (recommended), other higher-level COSC courses with department permission in consultation with the Computer Science Department.

## Current Program:

## Bachelor of Science in Education-Earth and Space Science*

Liberal Studies: As outlined in Liberal Studies section with the following specifications:
Mathematics: MATH 121
Natural Science: CHEM 111-112
Social Science: PSYC 101
Liberal Studies Electives: 6cr, MATH 217, PHYS 111, no courses with GEOS prefix

## College:

| Preprofessional Education Sequence: |  |
| :--- | :---: |
| COMM 103 | Digital Instructional Technology |
| EDSP 102 | Educational Psychology |
| Professional Education Sequence: |  |
| EDEX 301 | Education of Students with Disabilities in |
|  | Inclusive Secondary Settings |
| EDSP 477 | Assessment of Student Learning: Design and |
|  | Interpretation of Educational Measures |
| EDUC 242 | Pre-student Teaching Clinical Experience I |
| EDUC 342 | Pre-student Teaching Clinical Experience II |
| EDUC 441 | Student Teaching |
| EDUC 442 | School Law |
| EDUC 451 | Teaching Science in the Secondary School |

Major:
Required Courses:
BIOL 103 General Biology I
GEOS 121 Physical Geology
GEOS 122 Physical Geology Laboratory
GEOS 131 Historical Geology
GEOS 132 Historical Geology Laboratory
GEOS 341 Solar System
GEOS 342 Stellar Astronomy
GEOS 350 Operation of the Planetarium
GEOS 361 Physical Oceanography
GEOS 371 Meteorology I
$\begin{array}{lll}\text { GEOS 371 } & \text { Meteorology I } & \text { 3cr } \\ \text { PHYS } 112 & \text { Physics II Lecture } & \text { 3cr }\end{array}$
PHYS 121 Physics I Lab
PHYS 122 Physics II Lab

## Controlled Electives:

Geology electives (200 level or higher)

## Proposed Program:

## Bachelor of Science in Education-Earth and Space Science*

52 Liberal Studies: As outlined in Liberal Studies section with the following specifications:
Mathematics: MATH 121
Natural Science: CHEM 111-112
Social Science: PSYC 101
Liberal Studies Electives: 6cr, MATH 217, PHYS 111, no courses with GEOS prefix

29 College:
31
Preprofessional Education Sequence:

| COMM 103 | Digital Instructional Technology | 3cr |
| :--- | :--- | :--- |
| EDSP 102 | Educational Psychology | 3 cr |

Professional Education Sequence:

| EDEX 301 | Education of Students with Disabilities in |  |
| :--- | :--- | :--- |
|  | Inclusive Secondary Settings | 2cr |

EDEX 323 Instruction of English Language Learners | with Special Needs |
| :--- | :--- |

$\begin{array}{lll}\text { EDSP } 477 & \text { Assessment of Student Learning: Design and } & \\ & \text { Interpretation of Educational Measures } & \text { 3cr }\end{array}$
EDUC 242 Pre-student Teaching Clinical Experience I 1cr
EDUC 342 Pre-student Teaching Clinical Experience II 1cr
EDUC 441 Student Teaching 12cr
EDUC 442 School Law 1cr
EDUC 451 Teaching Science in the Secondary School 3cr
39 Major:
39
Required Courses:
GEOS 201 Foundations of Geology 4cr
GEOS 202 Quantitative Methods in the Geosciences 2cr
GEOS 341 Planetary Geology 4cr
GEOS 342 Stellar Astronomy 4cr
GEOS 353 Paleontology 4cr
GEOS 370 Oceanography 4cr
GEOS 371 Meteorology 3cr
BIOL 111 Principles of Biology I 4cr
PHYS 121 Physics I Lab 1cr
Controlled Electives:
Select nine (9) credits from the following: 9cr
GEOS 203 Surficial Geology
Any 300-level GEOS course
Any 400-level GEOS course, except GEOS 470 and 480
PHYS 112 Physics II Lecture
PHYS 122 Physics II Lab
Total Degree Requirements:
${ }^{(*)}$ See requirements leading to teacher certification, titled "3-Step Process for Teacher Educations", in the College of Education and Educational Technology section of this catalog.

## Current Catalog Description:

Minor-Geology

## Required Courses:

GEOS 121 Physical Geology 3cr
GEOS 122 Physical Geology Laboratory 1cr
GEOS 131 Historical Geology 3cr
GEOS 132 Historical Geology Laboratory 1cr
Three upper-level (300 or higher) courses in Geology 9cr

## Proposed Catalog Description:

Minor in Geology

Required Courses: 18
GEOS 201 Foundations of Geology
4cr
GEOS 202 Quantitative Methods in the Geosciences
2cr
12 credits from the following list: 12cr
GEOS 203 Surficial Geology
Any 300-level GEOS course
Any 400-level GEOS course, except GEOS 470 and 480 (1)
(1) Only one Geoscience Field Workshop (including prerequisite Seminar) can be counted toward the minor.

Rationale: Never has the need for broad public understanding of our Earth and its dynamic systems been as critical as at present. Our understanding of large-scale geological processes and the volume of knowledge encompassed by the geosciences have grown exponentially over the past several decades. At the same time, our pedagogical appreciation of "how students think and learn" has driven a substantial shift in our approach to teaching science. In a series of meetings the department outlined a number of goals, which would significantly improve our programs both pedagogically and mechanically.

Constructing a Strong Student Knowledge/Skills Base: It is essential that students receive a complete education in the core material of their chosen discipline. Students must learn to recognize rock and mineral specimens and learn their chemical formulas, understand the history of the Earth, recognize surficial features and how geologic processes shape them, etc. We have developed a "core" set of courses for each track using existing course offerings as well as new courses that provide breadth of knowledge and skills that are critical to the training of future geoscientists and Earth science educators. Students' first steps into the programs will now occur through a series of three introductory courses that will develop the standard knowledge base and numerical and foundational skills of the discipline using creative new pedagogy of team and active learning exercises rather than the traditional "lecture/lab."

Developing Collaborative and Experiential Learning: Meaningful participatory experience can have a profound impact on student intellectual development and may be the greatest single influence to transform young science students into young scientists. Pedagogical evidence clearly supports the benefits of active learning. It enhances professional skills such science and math competency, data analysis, communication, etc. It also develops personal attitudes, increases confidence and builds intrinsic interest in learning. In our new
programs, we capitalize on existing strengths we offer through interactive, hands-on learning and integrate new opportunities for paired Seminar-Field Workshop courses. We are modifying our traditional field trips into project-based field experiences unique to the particular field area. In addition we are developing a preliminary one-credit seminar for each Field Workshop to introduce students to the necessary background and skills needed.

Fostering Creative Thought and Critical Analysis: While facts are undeniably the raw materials for science, creative thought is the process by which science grows. Students must be able to use the facts to think scientifically. Hypothesis testing, falsification, and interpretation in the face of incomplete or contradictory data are critical steps in a student's intellectual growth. Our new program integrates intellectually challenging projects and real world exercises that challenge their imagination and creativity. New courses are designed to foster creative thinking and develop analytical skills, and revised existing courses expand such opportunities. In addition, we are increasing research credits in GEOS 480, and expanding opportunities for project-based exercises in GEOS 201-203.

Modernizing Curricular Offerings: The need to modernize our curriculum and course content arises from changes in the subfields of the geosciences over the past twenty years. A number of our course proposals involve the increase in the number of lecture hours to accommodate additional course content. Where appropriate, we also have combined courses into single courses reflecting a de-emphasis of particular subfields.

Improving 4-year Graduation Rate: Although specific data are not available, it is clear that very few of our Geology and Environmental Track students graduate in the four years typical of undergraduate programs. There are several reasons for this. First, it is very common in undergraduate geology and geoscience departments that relatively few majors enter their first year of college specifically knowing that this will be their major. Rather, many "discover" the major while taking an introductory course, often as a science requirement. Second, we have a large number of students who transfer into our major either from other IUP programs, or from other universities. Third, our current curriculum has a complicated set of prerequisites which, when coupled with the fact that many of our upper-level courses are only taught every other year, creates many situations where students are unable to take a required course when it is offered and must wait up to two years for that course to be taught again. In any of these cases, our current programs provide little scheduling flexibility that would help students to graduate within the typical four-year timeframe.

We are proposing a number of program revisions to combat these issues. First, we are creating a new set of introductory courses, GEOS 201 Foundations of Geology, GEOS 202 Quantitative Methods in the Geosciences, and GEOS 203 Surficial Processes that will serve as prerequisites for almost all 300-level and 400-level courses. In addition, we plan to offer GEOS 201 and GEOS 202 (they will typically be taken concurrently) every semester which will provide maximum access to upper-level courses for students transferring into the program in either the fall or spring semester. Second, we are increasing the ability of students to select freely from upper-level Geoscience and allied science classes, increasing the number of controlled elective credits from 9-10 to 19 in the Geology Track, and from 8-9 to 20 in the Environmental Track. Third, we are allowing credit from one 100-level or 200-level course to count toward controlled electives to add increased flexibility for the student who chooses to major in Geosciences after taking one of our liberal studies courses. Recognizing the unique nature of each student's schedule, we anticipate that students who begin either the Geology or Environmental track as late as the spring semester of their sophomore year will still be able to fulfill program requirements within the four-year timeframe.

Developing a Sense of Community within the Geoscience Department: Finally, we believe that our program revisions will help to develop of a distinct community to which individuals (students, faculty, and staff) have a "sense of belonging". Opportunities for active and small group learning are particularly important for encouraging identity with the geoscience community. Field trips and field workshops are integrated into the new program at all levels and allow close student-faculty interactions as well as invaluable practical experiences.

## f. Catalog Description

## Current Catalog Description:

Geology is a far-ranging science and encompasses various aspects of the Earth system, including the oceans, the atmosphere, and the solid Earth. Professional geologists are thus engaged in a wide range of activities, depending upon their interests. The problems with which geologists are faced include the evolution of life, the origin of volcanic activity, the assessment of volcanic and earthquake hazards, the evolution of our planetary neighbors, and perhaps most important, the human impact on our environment.

The department offers a B.S. degree with a major in Geology that is divided into two tracks: Geology and Environmental. Either track gives students the necessary foundation to pursue a wide variety of career goals. In addition, we offer degrees in secondary education for those students who are interested in teaching. The degrees and courses in our program emphasize hands-on learning, including outdoor instruction and student-oriented research. In addition to on-campus instruction and class-related field trips, the department offers several regional geology field courses, which take place in Newfoundland, the Yellowstone region, the Bahamas, and the American Southwest.

The B.S. degree with a major in Geology/Geology Track is designed for students who are interested in pursuing any of the various subdisciplines in Geology, including Oceanography/Marine Geology, Climate Change, Volcanology, Paleontology, Meteorology, and Geophysics. There is also considerable overlap between geology and astronomy; it is primarily geologists who explore the evolution of other planetary bodies, such as the Moon, Mars, and Venus. The curriculum reflects various interdisciplinary links and provides the foundation needed to pursue a wide variety of career goals. Career options include teaching, graduate school/research, and employment as a professional geologist (associated with a private business or an environmental firm or as a consultant for a federal or state agency).

The B.S. degree with a major in Geology/Environmental Track is designed for students who wish to pursue a career in the environmental field. In spite of our brief residence time, humankind's presence has had a significant, and in some cases negative, impact upon our environment. Geologists play a key role in dealing with environmental issues, and our Environmental Track prepares students to address various environmental problems. Graduates from this track will be prepared for direct entry into jobs with federal or state agencies and private environmental consulting firms, as well as postgraduate studies.

## Minor in Geology

The Minor in Geology is designed for students who desire some background in Geology, in conjunction with a degree in business or one of the social or physical sciences. The department also serves public education by preparing qualified and certified teachers in the field of Earth and Space Sciences and General Science Education.

The minor in Geology consists of 17 credits. Required are GEOS 121-122 and GEOS 131-132. Three upper-level (300 or higher) courses in geology (total 9 cr ) make up the remaining requirements for the minor.

## Proposed Catalog Description:

Geology is a far-ranging science and encompasses various aspects of the Earth system. In addition to the solid Earth, this system includes the oceans and atmosphere, climate change and most aspects of our immediate environment. Professional geologists are thus engaged in a wide range of activities, depending on their interests. Scientific questions addressed by geologists include the evolution of life, the origin of volcanic activity, the assessment of volcanic and earthquake hazards, the evolution of our planetary neighbors, climate change and perhaps most importantly, the human impact on our environment.

The department offers a B.S. degree in Geology that is divided into two tracks: Geology and Environmental. Either track gives students the necessary foundation to pursue a wide variety of career goals. In addition, we offer education degrees for those students who are interested in teaching. The degrees and courses in our program emphasize hands-on learning, including outdoor instruction and student-oriented research and professional experiential learning opportunities. In addition to on-campus instruction and classrelated field trips, the department also offers several regional geology Field Workshops, which take place in Newfoundland, the Northern Rockies region, Florida and the Bahamas, and the American Southwest.

Our B.S. in Geology/Geology Track is designed for students who are interested in pursuing any of the various sub-disciplines in Geology, including Oceanography/Marine Geology, Climate Change, Volcanology, Paleontology, Meteorology and Geophysics. There also is considerable overlap between geology and astronomy, as geologists study the evolution of other planetary bodies, such as the Moon, Mars and Venus; our curriculum reflects this link and provides the groundwork for planetary studies. The Geology Track thus provides students with the foundation needed to pursue a wide variety of career goals, including research (and postgraduate studies), teaching, or careers as professional geologists working with private businesses, environmental firms, or as a consultant for federal and state agencies.

The B.S. in Geology/Environmental Track is designed for students who wish to pursue careers in the rapidly expanding environmental field. While our planet has evolved over a 4.5 billion year history, our presence has had a significant impact upon our surroundings, in spite of our brief time of residence. Geologists play a key role in dealing with environmental issues, and the Environmental Track prepares students to solve environmental problems. Graduates from this track will be prepared for direct entry into jobs with federal or state agencies and private environmental consulting firms, as well as postgraduate studies.

The B.S. in Education-Earth and Space Science prepares students to become certified teachers in Pennsylvania and other states. Earth and Space Science teachers in middle and high school grades teach subjects that require a broad and solid foundation in science. Coursework includes study of geology, meteorology, oceanography, and astronomy. A basic understanding of the cognate sciences, biology, chemistry, and physics, and mathematics is also an essential part of the major. Courses in pedagogy, including the teaching of English language learners and students with special needs, complement the subject matter studies. Students create and present lessons, first in Geoscience courses and then in school classrooms, culminating in the student teaching experience in the last semester.

The Minor in Geology is designed for students who desire a background in Geology, in conjunction with degrees in business or one of the social or physical sciences.

## 2. Department of Journalism-New Course

## JRNL 261 Introduction to the Magazine Industry

$$
3 \mathrm{c}-01-3 \mathrm{cr}
$$

Prerequisite: Sophomore standing or Instructor permission
Introduces the magazine industry, how it is managed, how it functions, its strategies, and its roles and goals in society.

Rationale: This course is intended primarily for sophomores and juniors as a first look into magazines as a possible professional communications goal. Journalism minors and non-journalism majors also may enroll. Magazines are a separate medium, and this course's principles differentiate markedly from those applicable to newspapers and public relations. The journalism department believes that the curriculum area of magazines has potential for strong enrollment and is another professional writing, editing and design option for our majors.

## 3. Department of Philosophy—Program Revision

## Current Program:

## Bachelor of Arts - Philosophy/Pre-Law Track

Liberal Studies: As outlined in Liberal Studies section
with the following specifications:
Mathematics: 3cr
Philosophy: included in major
Liberal Studies Electives: 9cr, no courses with PHIL prefix

## College:

Foreign Language Intermediate Level (1)
Major:
Required Courses:
PHIL 101 Informal Logic: Methods of Critical Thinking
PHIL 222 Ethics

## Controlled Electives:

PHIL 324 or 325, and one other from the following: (6cr)
PHIL 32 Ancient Philosophy
PHIL 32 Modern Philosophy
PHIL 326 Phenomenology and Existentialism
PHIL 410 Contemporary Analytic Philosophy
PHIL 420 or 421, and one other from the following: (6cr)
PHIL 330 Philosophy of Science
PHIL 420 Metaphysics
PHIL 421 Theory of Knowledge
PHIL 460 Philosophy of Language
Four other PHIL courses (12cr) (may be from the above lists)
(with restrictions) $(2,3)$

## Other Requirements: Pre-Law Interdisciplinary Track

Seven courses, including at least one from each of six areas:
Business: ACCT 201, ACCT 202, BLAW 235
Criminology: CRIM 210, 215, 255
Economics: ECON 121, 122, 332
English: ENGL 212, 220, 310
History: HIST 320, 321, 346
Political Science: PLSC 358, 359, 361
Free Electives: 10-22
Total Degree Requirements:
(1) Intermediate-level Foreign Language may be included in Liberal Studies electives.
(2) No more than four 100-200 level courses may be counted toward the major. Only PHIL courses may be counted toward the major. Unless otherwise indicated in the Course Descriptions, all 300-400 level courses require either philosophy major or minor status, junior or senior standing, or permission of the instructor.
(3) No more than 9 nonclasswork credits may be counted toward the major. Nonclasswork credits include independent study, independent honors project, and internship in philosophy.

## Proposed Program:

Bachelor of Arts - Philosophy/Pre-Law Track

Liberal Studies: As outlined in Liberal Studies section
with the following specifications:
Mathematics: 3cr
Philosophy: included in major
Liberal Studies Electives: 9cr, no courses with PHIL prefix
College:
Foreign Language Intermediate Level (1)
0-6
Major:
Required Courses:
PHIL 101 Informal Logic: Methods of Critical Thinking or PHIL 110 Reasoning and the Law
PHIL 222 Ethics
Controlled Electives: 3cr
PHIL 324 or 325, and one other from the following: (6cr) 24cr
PHIL 324 Ancient Philosophy
PHIL 325 Modern Philosophy
PHIL 326 Phenomenology and Existentialism
PHIL 410 Contemporary Analytic Philosophy
PHIL 420 or 421, and one other from the following: (6cr)
PHIL 330 Philosophy of Science
PHIL 420 Metaphysics
PHIL 421 Theory of Knowledge PHIL 460 Philosophy of Language
Four other PHIL courses (12cr) (may be from the above lists) (with restrictions) $(2,3)$

Other Requirements: Pre-Law Interdisciplinary Track
Seven courses, including at least one from each of six areas:
Business: ACCT 201, ACCT 202, BLAW 235
Criminology: CRIM 210, 215, 255
Economics: ECON 121, 122, 332
English: ENGL 212, 220, 310
History: HIST 320, 321, 346
Political Science: PLSC 358, 359, 361
Free Electives:
Total Degree Requirements:
(1) Intermediate-level Foreign Language may be included in Liberal Studies electives.
(2) No more than four 100-200 level courses may be counted toward the major. Only PHIL courses may be counted toward the major. Unless otherwise indicated in the Course Descriptions, all 300400 level courses require either philosophy major or minor status, junior or senior standing, or permission of the instructor.
(3) No more than 9 nonclasswork credits may be counted toward the major. Nonclasswork credits include independent study, independent honors project, and internship in philosophy.

Rationale: The Philosophy Department recently added a new course, PHIL 110: Reasoning and the Law, which is appropriate to add to the required courses in the PHIL pre-law track. Rather than requiring PHIL 101: Informal Logic, the new program requires students to take either PHIL 101 or PHIL 110.

## 4. Department of Political Science-Program Revision

## Current Program:

Bachelor of Arts - Political Science/Pre-Law Track

Liberal Studies: As outlined in Liberal Studies section with the following specifications:
Mathematics: 3cr
Social Science: PLSC 111
Liberal Studies Electives: 9cr, no courses with PLSC prefix
College:
Foreign Language Intermediate Level (1)
Major:
Required Courses:
PLSC 101 World Politics
PLSC 111 American Politics
Controlled Electives:
At least one course in three of the first four areas:
American Studies: PLSC 251, 300, 346, 350, 351, 353, 354, 355, 356, 357, 358, 359
Political Theory: PLSC 360, 361, 362
Public Policy and Administration: PLSC 250, 370, 371, 444
International Studies: PLSC 280, 282, 283, 285, 320, 321, 380, 382, 383, 384, 385, 386, 387, 388, 389 (4)
General Political Science: PLSC 300 (strongly recommended), PLSC 377, 480, 481, 482, 485, 493

Other Requirements: Pre-Law Interdisciplinary Track
Seven courses, including at least one from each of six areas:
Business: ACCT 201, ACCT 202, BLAW 235
Criminology: CRIM 210, 215, 255
Economics: ECON 121, 122, 332
English: ENGL 212, 220, 310
History: HIST 320, 321, 346
Philosophy: PHIL 101, 222, 450

## Free Electives:

Total Degree Requirements:
(1) Intermediate-level Foreign Language may be included in Liberal Studies electives.
(2) PLSC 101 satisfies non-Western requirement.
(3) Credits for PLSC 111 are counted in the Liberal Studies Social Science requirements.
(4) PLSC 280 and/or 285 recommended as prerequisite to PLSC 380 through 389.

Proposed Program:
Bachelor of Arts - Political Science/Pre-Law Track

51 Liberal Studies: As outlined in Liberal Studies section 51 with the following specifications:
Mathematics: 3cr
Social Science: PLSC 111
Liberal Studies Electives: 9cr, no courses with PLSC prefix
College:
$\begin{array}{lll}\mathbf{0 - 6} \text { Foreign Language Intermediate Level (1) } & \mathbf{0 - 6}\end{array}$
33 Major: 33
Required Courses:
3cr(2) PLSC 101 World Politics
*cr(3) PLSC 111 American Politics 3cr(2)
30cr Controlled Electives: $\quad$ cr(3)
$\begin{array}{ll}\text { Controlled Electives: } & \\ \text { At least one course in three of the first four areas: } & 30 \mathrm{cr}\end{array}$
American Studies: PLSC 251, 300, 346, 350, 351, 353, 354, 355, 356, 357, 358, 359
Political Theory: PLSC 360, 361, 362
Public Policy and Administration: PLSC 250, 370, 371, 444
International Studies: PLSC 280, 282, 283, 285, 320,
321, 380, 382, 383, 384, 385, 386, 387, 388, 389 (4)
General Political Science: PLSC 300 (strongly recommended), PLSC 377, 480, 481, 482, 485, 493

Rationale: The Philosophy Department recently added a new course, PHIL 110: Reasoning and the Law, which is appropriate to add the list of controlled electives in the pre-law track.

## 5. Department of Spanish—Program Revision

## Current Program: <br> Bachelor of Science in EducationSpanish Education K-12 (*)

Liberal Studies: As outlined in Liberal Studies section with the following specifications:
Mathematics: 3cr
Social Science: ANTH 110, PSYC 101
Liberal Studies Electives: 9cr, MATH course (1), no courses with SPAN prefix

| College: |  |
| :---: | :---: |
| Preprofessional Education Sequence: |  |
| COMM 103 | Digital Instructional Technology |
| EDSP 102 | Educational Psychology |
| Professional E | Education Sequence: |
| EDEX 301 | Education of Students with Disabilities in Inclusive Secondary Settings |
| EDSP 477 | Assessment of Student Learning: Design and Interpretation of Educational Measures |
| EDUC 242 | Pre-Student Teaching Clinical Experience I |
| EDUC 342 | Pre-Student Teaching Clinical Experience II |
| EDUC 441 | Student Teaching |
| EDUC 442 | School Law |
| EDUC 453 | Teaching of Foreign Languages in the Secondary School |


| Major: <br> Study Abroad (2) |  |
| :---: | :---: |
| Required Courses: |  |
| SPAN 201 Intermediate Spanish or equivalent | 4cr |
| SPAN $220 \begin{gathered}\text { Intermediate Spanish Conversation and } \\ \text { Grammar }\end{gathered}$ | 3cr |
| SPAN 230 Intermediate Spanish Composition | 3cr |
| SPAN 260 Introduction to Hispanic Literature | 3cr |
| SPAN 340 Hispanic Civilization Through the Nineteenth Century | 3cr |
| SPAN 342/344 $20^{\text {th }}$-Century Spanish Civilization and Culture/ $20^{\text {th }}$-Century Spanish-American Civilization and Culture | 3cr |
| SPAN 350 Advanced Spanish Conversation | 3cr |
| SPAN 390 Teaching of Elementary Content Through the Spanish Language | 3cr |
| SPAN 404 Advanced Spanish Grammar | 3cr |
| SPAN 453 Spanish Phonetics and Phonemics | 3cr |
| Controlled Electives: |  |
| Any other 3cr from SPAN 300 or above | 3cr |
| SPAN 362, 364, or a 400-level literature course | 3cr |

## Free Electives:

## Total Degree Requirements:

## Proposed Program: <br> Bachelor of Science in EducationSpanish Education K-12 (*)

## with the following specifications:

Mathematics: 3cr, MATH 101 or higher
Social Science: ANTH 110, PSYC 101
Liberal Studies Electives: 9cr, MATH course (1), no courses with SPAN prefix

College:
Preprofessional Education Sequence:

| Preprofessional | Education Sequence: | 3cr |
| :--- | :--- | :--- |
| COMM 103 | Digital Instructional Technology | 3cr |

## Professional Education Sequence:

EDEX 301 Education of Students with Disabilities in Inclusive Secondary Settings
EDEX 323 Instruction of English Language Learners with Special Needs
EDSP 477 Assessment of Student Learning: Design and 3cr
Interpretation of Educational Measures 1cr
EDUC 242 Pre-Student Teaching Clinical Experience I 1 cr
EDUC 342 Pre-Student Teaching Clinical Experience II
EDUC 441 Student Teaching
EDUC 442 School Law
EDUC 453 Teaching of Foreign Languages in the Secondary School

Major:
Study Abroad (2)
Required Courses:
SPAN 201 Intermediate Spanish or equivalent 4c
$\begin{array}{lll}\text { SPAN } 220 & \begin{array}{c}\text { Intermediate Spanish Conversation and } \\ \text { Grammar }\end{array} & 3 \mathrm{cr}\end{array}$
SPAN 230 Intermediate Spanish Composition 3cr
SPAN 260 Introduction to Hispanic Literature
SPAN 340 Hispanic Civilization Through the Nineteenth Century
SPAN 342/344 $20^{\text {th }}$-Century Spanish Civilization and Culture/
$20^{\text {th }}$-Century Spanish-American Civilization and Culture
SPAN 350 Advanced Spanish Conversation 3cr
SPAN 390 Teaching of Elementary Content Through the
SPAN 404 Advanced Spanish Grammar
$-\quad 3 \mathrm{cr}$
SPAN 453 Spanish Phonetics and Phonemics 3cr
Controlled Electives:
Any other 3cr from SPAN 300 or above 3cr
SPAN 362, 364, or a 400-level literature course 3cr

3cr

1 Total Degree Requirements:
(*) See requirements leading to teacher certification, titled "3-Step Process for Teacher Education," in the College of Education and Educational Technology section of this catalog.
(1) Students who do not wish to select a MATH course under the Liberal Studies Electives must still take a second MATH course in order to fulfill the state requirements.
(2) Students must successfully complete a program of language study in a Spanish-speaking country. This program must, as a minimum, last four weeks and carry 3 or more cr extending beyond the intermediate level. Students may fulfill this requirement by participating in any of IUP's
(*) See requirements leading to teacher certification, titled "Three-Step Process for Teacher Education" in the College of Education and Educational Technology section of this catalog.
(1) Students who do not wish to select a MATH course under the Liberal Studies Electives must still take a second MATH course (101 or higher) in order to fulfill the state requirements.
(2) Students must successfully complete a program of language study in a Spanish-speaking country. This program must, as a minimum, last f our weeks and carry 3 or more cr extending beyond the intermediate level. Students may fulfill this requirement by participating in any of IUP's study abroad programs in Spain, Mexico, or Costa Rica or by
study abroad programs in Spain, Mexico, or Costa Rica or by transferring credits from another accredited program. Students wishing to fulfill this requirement through a non-IUP program should obtain prior approval from the department. Based on demonstration of adequate oral proficiency and significant cross-cultural experience, students may be exempted from this requirement with their advisor's approval.
transferring credits from another accredited program. Students wishing to fulfill this requirement through a non-IUP program should obtain prior approval from the department. Requests for exemptions to this requirement must be initiated by the student in writing, and submitted to the department chair.

Rationale: EDEX 323 Instruction of English Language Learners with Special Needs is being added as a requirement because The Pennsylvania State Board of Education adopted changes that affect all of Pennsylvania's teacher and educational specialist certification programs by adding 9 credits or 270 hours or equivalent combination for adaptations and accommodations for diverse students in an inclusive setting and 3 credits or 90 hours or equivalent combination to meet the instructional needs of English Language Learners (ELL). The Spanish Education K-12 Program covers most of that material in current courses, but in order to provide the remainder of the hours in ELL and instructional adaptation for diverse students the course EDEX 323 is being added as a required course.

This addition results in a total of 121 credits being required to complete the Spanish Education K-12 Program. PASSHE has given teacher education programs approval to exceed the 120-credit minimum by up to three credits (total of 123 credits) in order to fulfill these new requirements. Since our program already met most of the hours of instruction, we only need to add one additional credit to our 120-credit requirement. This also results in the number free electives being changed from 1 to 0 .

The change in the study abroad requirement exemption policy mentioned in footnote 2 is to be consistent for all three Spanish programs. This footnote already was approved by the UWUCC on October 7, 2008, for the Bachelor of Arts—Spanish and Spanish for International Trade Programs.
The phrase "MATH 101 or higher" was added to the Mathematics line and in footnote (1) to specify the level that is required by the state certification requirements. This is not a new requirement; the additional language is inserted only for purposes of clarification and to parallel the language used in the K-12 French Education Program catalog description.

## 6. Department of Geography-Program Revisions

## Current Program:

Bachelor of Arts- Geography/Environmental Track
Liberal Studies: As outlined in Liberal Studies section with the following specifications:
Mathematics: MATH 121 or 217
Liberal Studies Electives: 9cr, BTED/COSC/IFMG 101
recommended; no courses with GEOG prefix
College:
Foreign Language Intermediate Level (1)

## Major:

Required Courses:

| GEOG 213 | Cartography I |
| :---: | :---: |
| GEOG 230 | Cultural Geography |
| GEOG 231 | Economic Geography |
| GEOG 411 | History of Geography |
| GEOG 412 | Research Seminar |
| Controlled Electives: |  |
| One course from GEOG 251-257 |  |
| One course from GEOG 341-342 |  |
| Track Courses: Five courses from the following: |  |
| GEOG 314 | Map and Photograph Interpretation |
| GEOG 316 | Introduction to Geographic Information Systems |
| GEOG 335 | Geography of Energy |
| GEOG 341 | Climatology |
| GEOG 342 | Physiography |
| GEOG 343 | Geography of Fresh Water Resources |
| GEOG 345 | Biogeography for Environmental Managers |
| GEOG 415 | Remote Sensing |
| GEOG 440 | Conservation: Environmental Analysis |

Free Electives:
Total Degree Requirements:
(1) Intermediate-level Foreign Language may be included in Liberal Studies
electives.

## Proposed Program:

## Bachelor of Arts - Geography/Environmental Track

53 Liberal Studies: As outlined in Liberal Studies section with the following specifications:
Mathematics: MATH 217 or 6cr of MATH courses
Natural Science: BIOL 103-104 or GEOS 101-102 and GEOS 103-104 recommended
Liberal Studies Electives: 9cr, BTED/COSC/IFMG 101
recommended; no courses with GEOG prefix

College:
Foreign Language Intermediate Level (1)
36 Major:
Required Courses:
GEOG 213 Cartography I 3cr
GEOG 230 Cultural Geography 3cr
GEOG 231 Economic Geography 3cr
GEOG 341 Climatology 3cr
GEOG 342 Physiography 3cr
GEOG 411 History of Geography 3cr
GEOG 412 Research Seminar 3cr
RGPL 350 Introduction to Planning 3cr
Controlled Elective:
One course from GEOG 251-257 3cr
$\begin{array}{lll}\text { Track Courses: Five courses from the following: } & \\ \text { GEOG } 314 & \text { Map and Photograph Interpretation } & \text { 3cr }\end{array}$

| GEOG 316 | Introduction to Geographic Information <br> Systems | 3 cr |
| :--- | :--- | :--- |
|  | 3cr |  |

GEOG 335 Geography of Energy 3cr
GEOG 343 Geography of Fresh Water Resources 3cr
GEOG 345 Biogeography for Environmental 3cr
$\begin{array}{lll} & \text { Managers } & 3 \mathrm{cr} \\ \text { GEOG } 415 & \text { Remote Sensing } & 3 \mathrm{cr}\end{array}$
GEOG 425 GPS Concepts and Techniques 3cr
GEOG 440 Conservation: Environmental Analysis 3cr
25-31 Free Electives:
BIOL 210 Botany (recommended)
BIOL 362 Ecology (recommended)
GEOG 493 Internship (strongly recommended)
GEOS 201 Foundations of Geology (recommended)
GEOS 202 Quantitative Methods in the Geosciences
RGPL 458 Land Use Law (recommended)
RGPL 464 Land Use Policy (recommended)
Free Electives: 16-25
Total Degree Requirements:
(1) Intermediate-level Foreign Language may be included in Liberal Studies electives.

## Current Program:

## Bachelor of Arts- Geography/Economic Geographer Track

Liberal Studies: As outlined in Liberal Studies section with the following specifications:
Mathematics: MATH 121 or 217
Liberal Studies Electives: 9cr, BTED/COSC/IFMG 101
recommended; no courses with GEOG prefix

## College:

Foreign Language Intermediate Level (1)

## Major:

Required Courses:

| Required |  |
| :--- | :--- |
| GEOG 213 | Cartography I |
| GEOG 230 | Cultural Geography |
| GEOG 231 | Economic Geography |
| GEOG 411 | History of Geography |
| GEOG 412 | Research Seminar |
| Controlled Electives: |  |
| One course from GEOG 251-257 |  |
| One course from GEOG 341-342 |  |
|  |  |
| Track Courses: Five courses from the following: |  |
| GEOG 314 | Map and Photograph Interpretation |
| GEOG 316 | Introduction to Geographic Information |
|  | Systems |
| GEOG 335 | Geography of Energy |
| GEOG 341 | Climatology |
| GEOG 342 | Physiography |
| GEOG 343 | Geography of Fresh Water Resources |
| GEOG 345 | Biogeography for Environmental Managers |
| GEOG 415 | Remote Sensing |
| GEOG 440 | Conservation: Environmental Analysis |

## Free Electives:

25-31 Total Degree Requirements:

## Proposed Program:

## Bachelor of Arts - Geography/Economic Geographer Track

| 53 | Liberal Studies: As outlined in Liberal Studies section with the following specifications: <br> Mathematics: MATH 217 or 6cr of MATH courses Liberal Studies Electives: 9cr, BTED/COSC/IFMG 101 recommended; no courses with GEOG prefix | 53-56 |
| :---: | :---: | :---: |
|  | College: |  |
| 0-6 | Foreign Language Intermediate Level (1) | 0-6 |
| 36 | Major: | 42 |
|  | Required Courses: |  |
| 3cr | GEOG 213 Cartography I | 3cr |
| 3cr | GEOG 230 Cultural Geography | 3cr |
| 3cr | GEOG 231 Economic Geography | 3cr |
| 3 cr | GEOG 341 Climatology | 3cr |
| 3 cr | GEOG 342 Physiography | 3cr |
|  | GEOG 411 History of Geography | 3cr |
| 3cr | GEOG 412 Research Seminar | 3 cr |
| 3cr | RGPL 350 Introduction to Planning | 3cr |
|  | Controlled Elective: |  |
|  | One course from GEOG 251-257 | 3cr |
| 3cr | Track Courses: Five courses from the following: |  |
|  | GEOG 331 Population Geography | 3cr |
| 3cr | GEOG 332 Urban Geography | 3cr |
| 3 cr | GEOG 333 Trade and Transportation | 3cr |
| 3 cr | GEOG 334 Political Geography | 3cr |
| 3 cr | GEOG 336 Social Geography | 3cr |
| 3cr | GEOG 464 Land Use Policy | 3cr |
| 3cr | Free Electives: | 16-25 |
| 3 cr | ECON 383 Urban/Regional Economics (recommended) | 3cr |
| 3 cr | GEOG 493 Internship (strongly recommended) | 3cr |
|  | RGPL 458 Land Use Law (recommended) | 3cr |
| 25-31 | Total Degree Requirements: | 120 |

Total Degree Requirements:

[^0](1) Intermediate-level Foreign Language may be included in Liberal Studies electives.

## Current Program:

## Bachelor of Arts- Geography/

 GIS and Cartographer TrackLiberal Studies: As outlined in Liberal Studies section with the following specifications:
Mathematics: MATH 121 or 217
Liberal Studies Electives: 9cr, BTED/COSC/IFMG 101
recommended; no courses with GEOG prefix

## College:

Foreign Language Intermediate Level (1)

## Major:

| Required Courses: |  |
| :---: | :---: |
| GEOG 213 | Cartography I |
| GEOG 230 | Cultural Geography |
| GEOG 231 | Economic Geography |
| GEOG 411 | History of Geography |
| GEOG 412 | Research Seminar |
| Controlled Electives: |  |
| One course from GEOG 251-257 |  |
| One course from GEOG 341-342 |  |
| Track Courses: Five courses from the following: |  |
| GEOG 314 | Map and Photograph Interpretation |
| GEOG 316 | Introduction to Geographic Information Systems |
| GEOG 335 | Geography of Energy |
| GEOG 341 | Climatology |
| GEOG 342 | Physiography |
| GEOG 343 | Geography of Fresh Water Resources |
| GEOG 345 | Biogeography for Environmental Managers |
| GEOG 415 | Remote Sensing |
| GEOG 440 | Conservation: Environmental Analysis |

## Free Electives:

Total Degree Requirements:

## Proposed Program:

## Bachelor of Arts - Geography/ GIS and Cartographer Track

| 53 | Liberal Studies: As outlined in Liberal Studies section with the following specifications: <br> Mathematics: MATH 217 or 6cr of MATH courses Liberal Studies Electives: 9cr, BTED/COSC/IFMG 101 recommended; no courses with GEOG prefix |  | 53-56 |
| :---: | :---: | :---: | :---: |
|  | College: |  |  |
| 0-6 | Foreign Lang | age Intermediate Level (1) | 0-6 |
| 36 | Major: <br> Required Courses: |  | 42 |
|  |  |  |  |
| cr | GEOG 213 | Cartography I | 3cr |
| cr | GEOG 230 | Cultural Geography | 3 cr |
| cr | GEOG 231 | Economic Geography | 3cr |
| cr | GEOG 341 | Climatology | 3cr |
| 3cr | GEOG 342 | Physiography | 3cr |
|  | GEOG 411 | History of Geography | 3cr |
| cr | GEOG 412 | Research Seminar | 3cr |
| 3cr | RGPL 350 | Introduction to Planning | 3cr |
|  | Controlled Elective: |  |  |
|  | One course from GEOG 251-257 |  | 3cr |
| 3cr | Track Courses: Five courses from the following: |  |  |
|  | GEOG 313 | Cartography II | 3cr |
| cr | GEOG 314 | Map and Photograph Interpretation | 3cr |
| cr | GEOG 316 | Introduction to Geographic Information |  |
| cr |  | Systems | 3cr |
| cr | GEOG 415 | Remote Sensing | 3cr |
| cr | GEOG 417 | Technical Issues in GIS | 3cr |
| cr | GEOG 421 | Enterprise GIS Management: Theory and |  |
| cr |  | Practice | 3cr |
| 3cr | GEOG 425 | GPS Concepts and Techniques | 3cr |
| 25-31 | Free Electives: |  | 16-25 |
|  | GEOG 493 | Internship (strongly recommended) | 3cr |
| 120 | RGPL 453 | Planning Design I (recommended) | 3cr |
|  | RGPL 454 | Planning Design II (recommended) | 3cr |

Total Degree Requirements:

[^1]
## Current Program: <br> Bachelor of Arts- Geography/ General Geography Track

Liberal Studies: As outlined in Liberal Studies section with the following specifications: Mathematics: MATH 121 or 217 Liberal Studies Electives: 9cr, BTED/COSC/IFMG 101 recommended; no courses with GEOG prefix

College:
Foreign Language Intermediate Level (1)

## Major:

## Required Courses:

$\begin{array}{lll}\text { Required } \\ \text { GEOG } 213 & \text { Cartography I } & \text { 3cr }\end{array}$
GEOG 230 Cultural Geography $\quad$ 3cr
GEOG 231 Economic Geography
GEOG 411 History of Geography
GEOG 412 Research Seminar
Controlled Electives:
One course from GEOG 251-257
One course from GEOG 341-342
Five courses ( 15 cr ) from any GEOG courses (only one GEOG 100-level course permitted)

Free Electives:
Total Degree Requirements:
(1) Intermediate-level Foreign Language may be included in Liberal Studies electives

## Proposed Program: <br> Bachelor of Arts - Geography/ <br> General Geography Track

53 Liberal Studies: As outlined in Liberal Studies section 53-56 with the following specifications: Mathematics: MATH 217 or 6cr of MATH courses Liberal Studies Electives: 9cr, BTED/COSC/IFMG 101 recommended; no courses with GEOG prefix
$\begin{array}{llc} & \text { College: } & \\ \mathbf{0 - 6} & \text { Foreign Language Intermediate Level (1) } & \mathbf{0 - 6}\end{array}$
36 Major: 42
Required Courses:

| GEOG 213 | Cartography I | 3 cr |
| :--- | :--- | :--- |
| GEOG 230 | Cultural Geography | 3 cr |
| GEOG 231 | Economic Geography | 3 cr |
| GEOG 341 | Climatology | 3 cr |
| GEOG 342 | Physiography | 3 cr |
| GEOG 411 | History of Geography | 3 cr |
| GEOG 412 | Research Seminar | 3 cr |
| RGPL 350 | Introduction to Planning | 3 cr |
| Controlled Elective: <br> One course from GEOG 251-257 <br> Five courses (15cr) from any GEOG courses <br> (only one GEOG 100-level course permitted) | 3 cr |  |

Free Electives: $\quad 16-25$
GEOG 493 Internship (strongly recommended) 3cr
Total Degree Requirements: 120
(1) Intermediate-level Foreign Language may be included in Liberal Studies electives.

Rationale: The faculty determined that it is beneficial and necessary that geography students be exposed to both curriculum regarding weather and climate patterns (Climatology) and landforms (Physiography). Presently, geography majors are only required to take one of these courses. Introduction to Planning is being added as a result of feedback from an external consultant determined that there should be more "cross pollination" between the Department's Geography and Regional Planning majors, in particular more planning courses as requirements and recommended electives for geography majors. In addition, our senior exit surveys have revealed that many students wish they had been exposed to the field of planning sooner in their academic careers, as they found it interesting but as juniors or seniors felt it was too late to change their program emphasis. A review of geography curriculum at universities where departments offer both the geography and planning majors indicates that it is common for planning courses to be part of the geography major core and recommended course requirements.

The Regional Planning major has internship listed as a requirement, therefore to achieve some uniformity and emphasize the importance of the internship experience we would like to add it to the catalog program description for geography as strongly recommended. The mathematics requirement is being changed to list MATH 217 Probability and Statistics as the preferred requirement, we hope to advise a vast majority of students into MATH 217 while allowing for flexibility for the small number of students who cannot pass the course and will need to pass six credits of math courses to strengthen their mathematics ability.

## APPENDIX B <br> University-Wide Graduate Curriculum Committee Co-Chairs Piper and Baumer

## FOR ACTION:

New Course / Cross Listed: ENGL 753/853 Studies in Literature as a Profession Sponsoring Department: English
Catalogue Start Term: Summer 2009

## Summary \& Rationale:

This course will be an elective for students in the MA Generalist, MA Literature, and PhD Literature and Criticism programs within the English Department, and it will fill the Research Skills requirement for the PhD in English Literature and Criticism.

With the increasing competition on the academic job market, professional development is essential. According to the Final Report of the Modern Language Association Committee on Professional Development, "if present employment patterns continue fewer than half the seven or eight thousand graduate students likely to earn PhDs in English and foreign languages between 1996 and 2000 can expect to obtain full-time tenure-track positions within a year of receiving their degrees." ${ }^{1}$ Students must be well-equipped to enter the job market; thus, this course focuses on professional development, including: working in a field, presenting at conferences, scholarly publishing, and entering the academic job market. Moreover, this course offers those professional skills in a sustained format with substantial one-on-one interaction that allows the students to tailor the work to their own professional goals. This course will also supplement and reinforce current mentoring and advising efforts. ${ }^{1}$ The Modern Language Association is the governing body for Departments of English and Foreign Languages and Literatures. The Committee on Professional Employment: Final Report is available at http://www.mla.org/prof_employment

## Catalogue Description:

## ENGL753/ENGL 853

## Studies in Literature as a Profession

## 3c-01-3sh

There are many ways in which students can prepare themselves to be competitive and successful when they enter the English Literature professions. Focusing on the practical aspects of literature as a profession, this course will cover a variety of topics including the job market, publishing, defining a field of study, writing in relevant genres, and teaching. Although appropriate for any student in the Masters or Doctoral program, this course is aimed at those students seeking employment at the university level and/or those who are looking to develop their academic research and writing skills. The purpose of this course is to provide a space in which students can engage in intensive work on the project or projects of their choice while situating that work within broader scholarly and professional communities. Students will become fully immersed in the profession by studying the resources relevant to their chosen fields and careers. This course is offered as an elective for MA and PhD students, and it will also fill the Research Skills requirement.

## APPENDIX C

## University Senate Development \& Finance Committee Chair Domaracki

## FOR INFORMATION:

February 3, 2009

## Committee Reports

Parking Committee Report 1. The 76 new spaces in the Robertshaw -North Lot have been designated "Long Term Parking". This will eliminate the waiting list for on-campus students who own cars. 2. A motion was made and passed to grant the "University Professor" a free reserved space for the duration of their award year. The professor will get to choose which faculty parking lot they would like their reserved spot located in.

Budget Report - No report

## Old Business

Reverse 911 - Reverse 911 was used Wednesday, Jan. 28, 2009, for the snow event. Two (2) text messages were sent but difficulties with the internet connection, outside of the university, created problems preventing everyone from receiving the message. IUP is designing a "back-up" system in house that would prevent future loss of internet connectivity and e-mail capacity.

Residential Revival Phase III \& IV - Phase III is on schedule and moving forward. Phase IV planning is proceeding with final checks on design, financing and pricing underway. The demolition of Lawrence Scranton and Shafer Halls, the bridge to Eberly and the PEMA underground facility will occur at the beginning of Phase IV and the demolition of McCarthy Hall is included in the final leg of Phase IV.

Master Plan Update - Through the RFP and interview process a potential professional design firm has been identified to undertake the update of the master plan. Negotiations with that firm are to be forthcoming.

Nursing Renovation - Johnson Hall - The contract for the renovation of the second floor of Johnson Hall is being finalized and work will begin in the near future.

Stack Repair - Boiler Plant - An inspection of the Boiler Plant smokestack is scheduled for the next Boiler plant shut down beginning in May 2009. Depending on the results of the inspection repairs could take as long as six weeks or more.

Chiller Plant Connection to Ackerman, Stapleton and Stabley - These buildings will be connected to the central chiller plant cooling system. This connection will allow Ackerman, Stapleton and Stabley Halls to be cooled by the central chiller plant and will facilitate the removal of antiquated cooling systems currently being used by these buildings.

ESCO Project Status - Siemens - Work has been occurring across campus on lighting and plumbing energy conservation measures. Lighting fixtures and hardware have been replaced with new energy saving bulbs and switches. Toilets have been modified to use less water. In addition the energy management system and energy usage metering has been upgrade with the project.

New Business - None

Adjourn
Remaining Meeting Dates for AY 08-09
3-10-09
3-31-09
4-28-09

# APPENDIX D <br> University Senate Research Committee Chair Sciulli 

## FOR INFORMATION:

The committee met on February 3, 2009 and awarded $\$ 20,450$ in Small Grants to the following individuals:

- Francis Allard
- Charlene Bebko
- Holly Belch
- Holly Branthoover
- Roger Briscoe
- Anne Creany
- Kimberly Desmond
- Kelly Heider
- Valeri Helterbran
- Anson Long
- Crystal Machado
- Laura Marshak
- Maureen McHugh
- Kelli Jo Kerry Moran
- Kelli Paquette
- Gloria Park
- Raymond Pavloski
- Michael Poage
- Ben Rafoth
- Margaret Reardon
- Lynn Shelly
- Yaya Sissoko
- Thomas Slater
- John Taylor


[^0]:    (1) Intermediate-level Foreign Language may be included in Liberal Studies electives.

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