

LSC Use Only No:	LSC Action-Date:	AP-2/21/13	12-82a.	UWUCC USE Only No.	UWUCC Action-Date:	AP-3/5/13	Senate Action Date:	App-3/26/13
------------------	------------------	------------	---------	--------------------	--------------------	-----------	---------------------	-------------

**Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee**

Contact Person John Benhart, Jr.	Email Address jbenhart@iup.edu
Proposing Department/Unit Geography and Regional Planning	Phone 724-357-2250

Check all appropriate lines and complete information as requested. Use a separate cover sheet for each course proposal and for each program proposal.

**1. Course Proposals (check all that apply)**

New Course                       Course Prefix Change                       Course Deletion  
 Course Revision                       Course Number and/or Title Change                       Catalog Description Change

<u>Current</u> Course prefix, number and full title	<u>Proposed</u> course prefix, number and full title, if changing
---	---

**2. Additional Course Designations: check if appropriate**

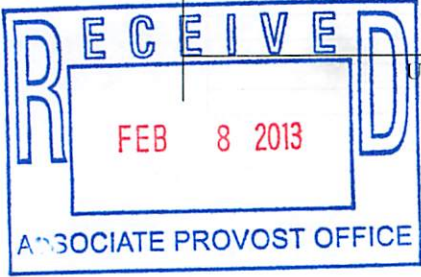
This course is also proposed as a Liberal Studies Course.                       Other: (e.g., Women's Studies, Pan-African)  
 This course is also proposed as an Honors College Course.

**3. Program Proposals**

New Degree Program                       Program Title Change                       Other  
 New Minor Program                       New Track

<u>Current</u> program name	Bachelor of Arts – Geography/Energy Geotechnology/Energy Environmental Compliance Concentration	<u>Proposed</u> program name, if changing
-----------------------------	---	---

4. Approvals	Date
Department Curriculum Committee Chair(s) <i>Gail Sechrist</i>	1/28/13
Department Chair(s) <i>John Benhart Jr.</i>	1/28/13
College Curriculum Committee Chair <i>David McDaniel</i>	2/6/13
College Dean <i>Jan</i>	2/16/13
Director of Liberal Studies *	
Director of Honors College *	
Provost * <i>Christy Maclean</i>	2/4/13
Additional signatures as appropriate: (include title)	
UWUCC Co-Chair <i>Gail Sechrist</i>	3/14/13



MAR 14 2013  
Liberal Studies

Received  
MAR 1 2013  
Liberal Studies

Received  
FEB 8 2013  
Liberal Studies

Department of Geography and Regional Planning: Program Revision

**II. Concentration: Bachelor of Arts - Geography/Energy Geotechnology Concentration**

**I. Catalog Description: Geography-Energy Geotechnology/Environmental Compliance Concentration**

The Energy Geotechnology/Environmental Compliance Concentration is designed to prepare majors in geography for careers as spatial/geographic information systems analysts or environmental compliance professionals in the energy industries, or further graduate studies. Students who select this concentration learn about energy resources in northern Appalachia (natural gas, coal, and wind), aspects of the natural environment in the region, regulatory and compliance regimes for the energy industries at federal and state levels, the conceptual and technical aspects of geospatial techniques (cartography, geographic information systems, and global positioning systems), and specific spatial applications implemented in the energy industries. They should be well prepared both conceptually and technically upon graduation for employment in the energy industries.

Proposed Program	
<b>Bachelor of Arts- Geography-Energy Geotechnology/Environmental Compliance Concentration</b>	
<b>Liberal Studies:</b> As outlined in the Liberal Studies section with the following specifications:	49-50
<b>Mathematics:</b> MATH 217 or 6cr of MATH courses	
<b>Natural Science:</b> BIOL 103-104 recommended.	
<b>Social Science:</b> GEOG 102 recommended	
<b>Liberal Studies Electives:</b> 9cr BTED/COSC/IMFG 101 recommended, no courses with GEOG prefix	
<b>College:</b>	
Foreign Language Intermediate Level (1)	0-6
<b>Major:</b>	
<b>Required Courses in Geography:</b>	42
GEOG 213 Cartography I	3cr
GEOG 230 Cultural Geography	3cr
GEOG 231 Economic Geography	3cr
GEOG 316 Introduction to Geographic Information Systems	3cr
GEOG 341 Climatology	3cr
GEOG 342 Physiography	3cr
GEOG 411 History of Geography	3cr
GEOG 412 Research Seminar	3cr
<b>Concentration Emphases: 1) Energy Environmental Permitting &amp; Compliance; 2) Energy Geotechnology</b>	18cr
<b>Energy Environmental Permitting &amp; Compliance Emphasis (6 courses)</b>	
GEOG 335 Geography of Energy (2)	3cr
GEOG 343 Geography of Fresh Water Resources	3cr
GEOG 345 Biogeography for Environmental Managers	3cr
GEOG 417 Technical Issues in Geographic Information Systems	3cr
GEOG 425 Global Positioning Systems Concepts and Techniques	3cr
GEOG 440 Conservation: Environmental Analysis	3cr
GEOG 444 Energy Development and Compliance I (2)	3cr
GEOG 445 Energy Development and Compliance II	3cr
RGPL 350 Introduction to Planning	3cr
RGPL 426 Environmental Land Use Planning	3cr
<b>Energy Geotechnology Emphasis (6 courses)</b>	
GEOG 314 Map and Photo Interpretation	3cr
GEOG 335 Geography of Energy (2)	3cr
GEOG 343 Geography of Fresh Water Resources	3cr
GEOG 415 Remote Sensing	3cr
GEOG 417 Technical Issues in Geographic Information Systems	3cr
GEOG 421 Enterprise GIS Management	3cr
GEOG 425 Global Positioning Systems Concepts and Techniques	3cr
GEOG 444 Energy Development and Compliance I (2)	3cr

## II. Concentration: Bachelor of Arts - Geography/Energy Geotechnology/Energy Environmental Compliance Concentration

### 1. Catalog Description: Geography-Energy Geotechnology/Energy Environmental Compliance Concentration

The Energy Geotechnology/Energy Environmental Compliance Concentration is designed to prepare majors in geography for careers as spatial/geographic information systems analysts or environmental compliance professionals in the energy industries, or further graduate studies. Students who select this concentration learn about energy resources in northern Appalachia (natural gas, coal, and wind), aspects of the natural environment in the region, regulatory and compliance regimes for the energy industries at federal and state levels, the conceptual and technical aspects of geospatial techniques (cartography, geographic information systems, and global positioning systems), and specific spatial applications implemented in the energy industries. They should be well prepared both conceptually and technically upon graduation for employment in the energy industries.

Proposed Program	
<b>Bachelor of Arts- Geography-Energy Geotechnology/Energy Environmental Compliance Concentration</b>	
<b>Liberal Studies:</b> As outlined in the Liberal Studies section with the following specifications:	49-50
<b>Mathematics:</b> MATH 217 (1)	
<b>Natural Science:</b> BIOL 103-104 recommended	
<b>Social Science:</b> GEOG 102 recommended	
<b>Liberal Studies Electives:</b> 9cr BTED/COSC/IMFG 101 recommended, no courses with GEOG prefix	
<b>College:</b>	
Foreign Language Intermediate Level (2)	0-6
<b>Major:</b>	
<b>Required Courses in Geography:</b>	42
GEOG 213 Cartography I	3cr
GEOG 230 Cultural Geography	3cr
GEOG 231 Economic Geography	3cr
GEOG 316 Introduction to Geographic Information Systems	3cr
GEOG 341 Climatology	3cr
GEOG 342 Physiography	3cr
GEOG 411 History of Geography	3cr
GEOG 412 Research Seminar	3cr
<b>Concentration Emphases: 1) Energy Environmental Compliance; 2) Energy Geotechnology</b>	<b>18cr</b>
<b>Energy Environmental Compliance Emphasis (6 courses) (4)</b>	
GEOG 343 Geography of Fresh Water Resources	3cr
GEOG 345 Biogeography for Environmental Managers	3cr
GEOG 417 Technical Issues in Geographic Information Systems	3cr
GEOG 425 Global Positioning Systems Concepts and Techniques	3cr
GEOG 435 Geography of Energy (3)	3cr
GEOG 440 Conservation: Environmental Analysis	3cr
GEOG 444 Energy Development and Compliance I (3)	3cr
GEOG 445 Energy Development and Compliance II	3cr
RGPL 350 Introduction to Planning	3cr
RGPL 426 Environmental Land Use Planning	3cr
<b>Energy Geotechnology Emphasis (6 courses) (4)</b>	
GEOG 314 Map and Photo Interpretation	3cr
GEOG 343 Geography of Fresh Water Resources	3cr
GEOG 415 Remote Sensing	3cr
GEOG 417 Technical Issues in Geographic Information Systems	3cr
GEOG 421 Enterprise GIS Management	3cr
GEOG 425 Global Positioning Systems Concepts and Techniques	3cr
GEOG 435 Geography of Energy (3)	3cr
GEOG 444 Energy Development and Compliance I (3)	3cr
GEOG 445 Energy Development and Compliance II (3)	3cr
<b>Free Electives:</b> BIOL 114 recommended	22-29

<b>ANTH 415 recommended</b>	
<b>Total Degree Requirements:</b>	<b>120</b>
(1) Or 6 credits of MATH courses	
(2) Intermediate-level Foreign Language may be included in Liberal Studies electives	
(3) Required Concentration Emphasis Courses	
(4) Students must take at least two additional different courses to meet the requirements for both emphases (with the minimum number of courses being eight)	

## 1b. Rationale

In conjunction with the IUP administration, Department of Geography and Regional Planning faculty identified Energy Geotechnology/Energy Environmental Compliance as a curriculum that will address a significant employment demand sector (the energy industries) in the Commonwealth of Pennsylvania and beyond. The Department has received significant feedback from energy employers (natural gas, coal, and wind) that students graduating with a combination of knowledge regarding energy resources, physiography, geospatial techniques, energy compliance regimes, and energy-related spatial analysis techniques would be in high demand. Additionally, significant numbers of graduates from our Geography programs have already been hired as geospatial and environmental compliance professionals by energy companies – the development of this concentration allows us to specifically add course content that we do not presently offer curriculum (for example GIS, environmental, energy and water) that has proven effective in preparing our students for employment in the energy industries.

Two courses have been added to be included as concentration emphasis courses. A significant gap in the curriculum that we recognized after talking with employers was knowledge about the specific characteristics of regional energy resources, as well as the translation of that knowledge into spatial approaches energy exploration, development, compliance, and logistics. GEOG 444 Energy Development and Compliance I is being proposed as a new required course as part of both the Energy Environmental Compliance and Energy Geotechnology concentration emphases to provide students exposure to these areas. A second new course, GEOG 445 Energy Development and Compliance II, builds upon GEOG 444 to provide an applied course experience in the implementation of geographic information systems (GIS) to specific types of spatial applications commonly encountered in the energy industries (examples would be unit/lease analyses, environmental compliance analyses, and production analyses).

The two emphases – Energy Environmental Compliance and Energy Geotechnology – are designed to prepare students for two related but distinct areas of focus with the energy sectors. Energy Environmental Compliance focuses on the environmental impacts of energy development, as well as the compliance framework in place to regulate these industries. Students pursuing this emphasis could work for private sector energy companies or contractors/consultants in a capacity where they would be undertaking site assessments and analyses designed to meet regulatory requirements. The Energy Geotechnology emphasis is intended to prepare students to become geospatial professionals employed in the energy industries, with a focus on application of techniques such as geographic information systems (GIS), remote sensing, global positioning systems (GPS), and relational databases in energy-specific problem solving contexts.

## 2. Credit requirements and Course Sequencing

### Energy Environmental Compliance Concentration Emphasis

<u>Semester 1</u>	<u>Semester 2</u>	<u>Semester 3</u>	<u>Semester 4</u>
GEOG 102	GEOG 213	GEOG 231	GEOG 342
GEOG 230	RGPL 350	GEOG 316	GEOG 343
		GEOG 435	
<u>Semester 5</u>	<u>Semester 6</u>	<u>Semester 7</u>	<u>Semester 8</u>
GEOG 341	GEOG 411	GEOG 412	GEOG 445
RGPL 426	GEOG 417	GEOG 444	
	GEOG 435		

### Energy Geotechnology Concentration Emphasis

<u>Semester 1</u>	<u>Semester 2</u>	<u>Semester 3</u>	<u>Semester 4</u>
GEOG 102	GEOG 213	GEOG 231	GEOG 342
GEOG 230		GEOG 316	GEOG 415
		GEOG 435	
<u>Semester 5</u>	<u>Semester 6</u>	<u>Semester 7</u>	<u>Semester 8</u>
GEOG 314	GEOG 411	GEOG 412	GEOG 445
GEOG 341	GEOG 417	GEOG 444	
	GEOG 425		

## III. Implementation

### 1. How will the proposed new concentration affect students already in the existing program?

Students presently pursuing another existing concentration in the Geography program will not be affected.

### 2. Are faculty resources adequate?

Yes. The department hired a new faculty member in Fall 2012, part of whose responsibilities will be to teach courses in the new concentration.

### 3. Are other resources adequate?

Yes.

### 4. Do you expect an increase or decrease in the number of students as a result of the new concentration. If so, how will the department adjust?

We expect an increase in the number of students in the Geography program as a result of the change. As mentioned above, the additional faculty member that department has hired will assist in taking on the new courses in the concentration and the additional instructional load.

### 5. Intended Implementation Date.

Fall 2013

#### **IV. Periodic Assessment**

**1. Describe the evaluation plan.**

There is no accrediting body for Geography so the only evaluation is the university's five year review, which will include student outcomes of the program.

**2. Frequency of evaluations.**

Every five years or whenever the next IUP five year review is called for.

**3. Evaluating entity.**

Department and outside reviewer, if recommended.

**V. Course Proposals (GEOG 444/545 Energy Development and Compliance I, GEOG 445/545 Energy Development and Compliance II are included with packet separately)**

# Indiana University Of Pennsylvania

Department of Anthropology  
McElhane Hall, Room G-12  
441 North walk  
Indiana, Pennsylvania 15705-1018

724-357-2841  
Fax: 724-357-7637  
Internet: <http://www.iup.edu>

Dec. 3, 2012

Dr. John Benhart, Chair  
Geography and Regional Planning

Dear John,

The Anthropology Department has reviewed your proposal for a new Energy Geotechnical Concentration and two courses on Energy Development and Compliance, GEOG 444 and 445. Although we note that these two courses do cover the culture resource analysis and compliance covered in our Cultural Resource Management course (ANTH 415/515), the overlap is minimal and we approve the addition of these courses. In reviewing your new concentration we would request that you consider adding our Cultural Resource Management class as an elective. Although the course does not focus on the spatial analysis it would provide a background in cultural resource management that would be valuable for anyone in the resource management and compliance fields. Overall we feel that this proposed curriculum will be a valuable addition to the offerings at IUP.

Sincerely,

Dr. Phil Neusius, Chair