

# UNDERGRADUATE CATALOG 2017–18

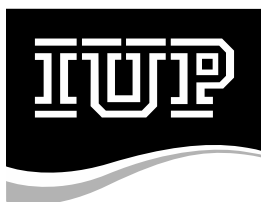
## DEPARTMENT OF GEOGRAPHY AND REGIONAL PLANNING

COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

[www.iup.edu/georegionalplan](http://www.iup.edu/georegionalplan)

This document is a direct extract from the full 2017–18 *Undergraduate Catalog*. As a result, the original page numbering will appear.

For information on other colleges at IUP, or about specific courses, please consult the full 2017–18 catalog, available at [www.iup.edu/registrar/catalog](http://www.iup.edu/registrar/catalog). Earlier catalogs are also available at this web address.



Indiana University of Pennsylvania

ecological tradition, and the study of spatial organization, which involves the way people use space on the earth's surface. In both traditions the focus is on understanding regions of the world and the interactions within and between them. Geographers make important contributions to the understanding of all aspects of humankind's use of and impact on the earth's surface.

In addition to the geography core (GEOG), there are five concentrations for specific geographic competencies: GIS/Cartographer, Environmental Geographer, Economic Geographer, Energy Geotechnology/Environmental Compliance, and General Geographer.

### **Geography—General Geography Concentration**

The General Geography Concentration encourages the major to sample courses from different subfields of the discipline. This concentration prepares the major for graduate work in geography and related fields of employment. Job options include report writing, research analysis, and data gathering. In government employment, the State Department, Department of Commerce, and the Census Bureau are significant places for geography skills.

### **Geography—Geographic Information Systems and Cartographer Concentration**

The Geographic Information Systems and Cartographer Concentration prepares students for employment as geographic information specialists, facilities managers, cartographers, and remote sensing specialists. Course work includes methods for identifying, modeling, and analyzing the spatial organization of human and environmental systems from both practical and theoretical perspectives. Data collection, spatial information management, and graphic presentation are integral skills taught in the program. Such skills could be and are used in course work for the analysis of wildlife habitat, facilities management, land use planning and site design, and transportation systems design and maintenance.

### **Geography—Economic Geographer Concentration**

The Economic Geographer Concentration provides a broad framework of ideas and theories in addition to a task-oriented approach to location analysis. Site planners articulate the needs of the community for economic space, the demands for convenient transport, the role of private enterprise, and the management of growth. This interrelated group of courses is useful to students, because economic geographers and developers are expected to analyze the interactions of concepts and variables. Market analysis for the location of new shopping centers, for example, requires understanding of economic principles, population characteristics, and the local political milieu, all in a spatial context.

### **Geography—Environmental Geographer Concentration**

The Environmental Geographer Concentration is designed to prepare majors in geography for careers in environmental fields or graduate study that leads to a variety of environmental careers. Students who elect this track acquire knowledge of the physical and human processes that shape the environment, strategies for analyzing environmental issues, and concepts that underlie strategies for ameliorating environmental problems. They understand the definition and delineation of flood plains and wetlands and the definition, delineation, and threats to biomes. The skills acquired in this track enable students to assess the causes, consequences, and solutions to a wide variety of environmental issues such as water pollution, acid rain, watershed management, or deforestation.

### **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 for 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

## **Department of Geography and Regional Planning**

**Website:** [www.iup.edu/georegionalplan](http://www.iup.edu/georegionalplan)

**John E. Benhart Jr., Chairperson;** Buckwalter, Ghosh, Hoch,\* Masilela,\* Okey, Patrick, Schaney, G. Sechrist, R. Sechrist, Smith; and professors emeriti Begg, Bencloski, Forbes

\*Core Regional Planning faculty

The Department of Geography and Regional Planning offers three separate degree programs for the geographer, planner, and teacher: bachelor of arts degree with a major in geography, bachelor of science degree with a major in regional planning, and bachelor of science in education degree with a major in social studies education—geography track.

Specific core requirements in Geography and Regional Planning offer a structured approach for majors. Appropriate subfields or concentrations are available in both programs to prepare students for graduate work and to support different career options for majors. There are five concentrations for the geography major and two concentrations for the regional planning major.

Department resources, which include the James E. Payne GIS/Cartography Laboratory and the new Spatial Environmental Analysis Laboratory, offer access to advanced geographic analysis equipment and resources. The fully equipped laboratories house 50 work stations, large-format plotters, global positioning system units, and water and atmospheric monitoring devices. Geographic information systems, image processing, and computer-aided drafting software includes the Arc GIS software suite, ERDAS Imagine, MapInfo, IDRISI, Trimble GPS Pathfinder Office and Terrasync, as well as MiniCad and VectorWorks.

A strong internship program directed by Brian Okey offers numerous public, private, and nonprofit placements in industry, engineering, conservation, land management, and planning agencies at the local, state, and federal levels. Because of employment demand for students from department programs, approximately 80 percent of internship placements are paid positions.

## **Geography**

Geography has several traditions of study. Two of the more important traditions are the study of relationships between humans and environment, or the

energy industries. They should be well prepared both conceptually and technically upon graduation for employment in the energy industries.

### Geography Minor

A minor in geography is appropriate for majors in all other fields of the natural and social sciences. Students in marketing and information systems will find a minor in this field relevant. A minor consists of 18 credits in courses taken only with the GEOG prefix; at least two courses must be at the 200 level and at least two courses must be at the 300 level or above. The department suggests students take major core courses if graduate study is anticipated.

### Geography Honors Program

The honors program is open by departmental permission to majors with at least a 3.25 GPA in total university course work and a 3.25 GPA in geography courses. After completing 45 credits of university course work, all qualified majors will be invited to join the Geography Honors Track. Social Studies Education/Geography Track majors are encouraged to participate, with the realization that participation will require more than 120 credits.

Students select one of the following 12-credit options: (1) Two courses from GEOG 333, 334, 337, or 440 and two 600-level (graduate seminar) courses, (2) Two courses from GEOG 333, 334, 337, or 440 and one 600-level (graduate seminar) course and GEOG 483 Honors Thesis, (3) Three courses from GEOG 333, 334, 337, or 440 and GEOG 483 Honors Thesis, (4) Three courses from GEOG 333, 334, 337, or 440 and one 600-level (graduate seminar) course. Honors students who enroll in the above designated undergraduate courses will undertake an honors project identified in conjunction with the course instructor and reviewed by the Geography program director or the department chair (if the director is the course instructor).

Students must maintain a 3.0 GPA in the track. To determine how Honors Track courses will be integrated into existing requirements for the geography major, students should consult their academic advisor. To apply, students must submit a letter of intent to the Geography program director. The student's advisor and one other Geography faculty member must endorse the student's application.

### Bachelor of Arts—Geography/General Geography Concentration

**Liberal Studies:** As outlined in Liberal Studies section with the following specifications: 49-50

**Mathematics:** MATH 217 (1)

**Liberal Studies Electives:** 9cr, BTED/COSC/IFMG 101 recommended; no courses with GEOG prefix

**College:** 0-6  
Foreign Language Intermediate Level (2)

**Major:** 42

**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 Electives:**

One course from GEOG 251-257	3cr
Five courses (15cr) from any GEOG courses (only one GEOG 100-level course permitted)	15cr

**Free Electives:** 22-29  
GEOG 493 Internship (strongly recommended) 3cr

**Total Degree Requirements:** 120

(1) An alternative to MATH 217 is 6cr of MATH courses. Only one must be a Liberal Studies MATH course.

(2) Intermediate-level foreign language may be included in Liberal Studies electives.

### Bachelor of Arts—Geography/Economic Geographer Concentration

**Liberal Studies:** As outlined in Liberal Studies section with the following specifications: 49

**Mathematics:** MATH 217 (1)

**Natural Science:** Option II

**Social Science:** ECON 121

**Liberal Studies Electives:** 9cr, ECON 122; no courses with GEOG prefix

**College:**

Foreign Language Intermediate Level (2) 0-6

**Major:** 45

**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 Electives:**

One course from GEOG 251-257 3cr

**Concentration Courses:**

**Base Requirements:**

GEOG 313	Cartography II (3)	3cr
GEOG 332	Urban Geography	3cr
GEOG 333	Trade and Transportation	3cr
Any three GEOG listed below. An optional issue focus consists of three from one group plus two corresponding electives:	9cr	

*Location analysis controlled electives:* (4)

GEOG 316, 331, 334, 404

*Global commerce controlled electives:* (5)

GEOG 331, 334, 335, 337

*Travel and tourism controlled electives:* GEOG 251-257

(second course from the group), GEOG 261, 336, 337

**Issue Focus Electives:** 0-6

*Location analysis:* ECON 383, MATH 121 and/or 217 (6),  
RGPL 352, 464

*Global commerce:* COMM 230, ECON 345, 346, 350,  
PLSC 280-285 (inclusive)

*Travel and tourism:* COMM 230, ECON 365,  
HIST 301-360 (inclusive), PLSC 280-285 (inclusive)

**Free Electives:** 14-26

GEOG 493 Internship (recommended)

**Total Degree Requirements:** 120

- (1) An alternative to MATH 217 is 6cr of MATH courses. Only one must be a Liberal Studies MATH course.
- (2) Intermediate-level foreign language may be included in Liberal Studies electives.
- (3) Three courses (9cr) of any combination from ACCT, FIN, or MGMT may replace the GEOG 313 requirement.
- (4) With special permission may include GEOG 620 (3cr).
- (5) With special permission may include GEOG 623 (3cr).
- (6) This must be in addition to courses for the MATH requirement.

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**Bachelor of Arts—Geography—Energy Geotechnology/  
Energy Environmental Compliance Concentration**

**Liberal Studies:** As outlined in the Liberal Studies section with the following specifications: 49-50

**Mathematics:** MATH 217 (1)

**Social Science:** GEOG 102 recommended

**Liberal Studies Electives:** 9cr, BTED/COSC/IFMG 101 recommended, no courses with GEOG prefix

**College:** 0-6

**Major:** 42

**Required Courses:**

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

**Concentration Emphases:** 18cr

**1) Energy Environmental Permitting and Compliance****2) Energy Geotechnology****Energy Environmental Permitting  
and Compliance Emphasis** (6 courses) (4)

GEOG 343	Geography of Fresh Water Resources	3cr
GEOG 345	Biogeography for Environmental Managers	3cr
GEOG 420	Technical Issues in Geographic Information Systems	3cr

GEOG 425	Global Positioning Systems Concepts and Techniques	3cr
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GEOG 435	Geography of Energy (3)	3cr
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GEOG 440	Conservation: Environmental Analysis	3cr
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GEOG 444	Energy Development and Compliance I (3)	3cr
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GEOG 445	Energy Development and Compliance II	3cr
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RGPL 350	Introduction to Planning	3cr
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RGPL 426	Environmental Land Use Planning	3cr
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**Energy Geotechnology Emphasis** (6 courses) (4)

GEOG 314	Map and Photo Interpretation	3cr
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GEOG 343	Geography of Fresh Water Resources	3cr
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GEOG 415	Remote Sensing	3cr
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GEOG 420	Technical Issues in Geographic Information Systems	3cr
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GEOG 421	Enterprise GIS Management	3cr
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GEOG 425	Global Positioning Systems Concepts and Techniques	3cr
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GEOG 435	Geography of Energy (3)	3cr
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GEOG 444	Energy Development and Compliance I (3)	3cr
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GEOG 445	Energy Development and Compliance II (3)	3cr
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**Free Electives:** 22-29

ANTH 4115 and BIOL 114 recommended

**Total Degree Requirements:** 120

- (1) Or 6cr 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).
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**Bachelor of Arts—Geography/Environmental Geographer  
Concentration**

**Liberal Studies:** As outlined in Liberal Studies section with the following specifications: 49-50

**Mathematics:** MATH 217 (1)

**Natural Science:** 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 (2) 0-6

**Major:** 42

**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 Electives:**

One course from GEOG 251-257 3cr

**Concentration Courses:** Five courses from the following:

GEOG 314	Map and Photograph Interpretation	3cr
GEOG 316	Introduction to Geographic Information Systems	3cr
GEOG 343	Geography of Fresh Water Resources	3cr
GEOG 345	Biogeography for Environmental Managers	3cr
GEOG 415	Remote Sensing	3cr
GEOG 425	GPS Concepts and Techniques	3cr
GEOG 435	Geography of Energy	3cr
GEOG 440	Conservation: Environmental Analysis	3cr

**Free Electives:** 22-29

Strongly Recommended: GEOG 493

Recommended: BIOL 210, 362, GEOS 201, 202, RGPL 458, 464

**Total Degree Requirements:** 120

- (1) An alternative to MATH 217 is 6cr of MATH courses. Only one must be a Liberal Studies MATH course.
  - (2) Intermediate-level foreign language may be included in Liberal Studies electives.
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**Bachelor of Arts—Geography/GIS and Cartographer  
Concentration**

**Liberal Studies:** As outlined in Liberal Studies section with the following specifications: 49-50

**Mathematics:** MATH 217 (1)

**Liberal Studies Electives:** 9cr, BTED/COSC/IFMG 101 recommended; no courses with GEOG prefix

**College:** Foreign Language Intermediate Level (2) 0-6

**Major:** 42

**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 Electives:**

One course from GEOG 251-257 3cr

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**Concentration Courses:** Five courses from the following:

GEOG 313	Cartography II	3cr
GEOG 314	Map and Photograph Interpretation	3cr
GEOG 316	Introduction to Geographic Information Systems	3cr
GEOG 415	Remote Sensing	3cr
GEOG 420	Technical Issues in Geographic Information Systems	3cr
GEOG 421	Enterprise GIS Management	3cr
GEOG 425	GPS Concepts and Techniques	3cr

**Free Electives:**

22-29

Strongly Recommended: GEOG 493

Recommended: RGPL 453, 454

**Total Degree Requirements:**

120

- (1) An alternative to MATH 217 is 6cr of MATH courses. Only one must be a Liberal Studies MATH course.
- (2) Intermediate-level foreign language may be included in Liberal Studies electives.

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**Minor—Geography**

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**Controlled Electives: (1)**

At least two courses at the 200 level

At least two courses at the 300 level or above

- (1) Only courses taken as GEOG may be counted toward the minor.

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**Geography Honors Track**

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**Prerequisites:** Declared major in geography, completion of at least 45cr of university course work, 3.25 or higher GPA in major and overall, plus endorsement of advisor and one other Geography faculty member

**Select one of the following options:**

Two courses from GEOG 333, 334, 337, and 440 (1) and two 600-level seminars

Two courses from GEOG 333, 334, 337, and 440 (1) and one 600-level seminar and GEOG 483/H/ (2) GEOG 333, 334, 337, and 440 (1) and GEOG 483/H/ (2)

Three from GEOG 333, 334, 337, and 440 (1) and one 600-level seminar

- (1) Students in these designated undergraduate courses will undertake an honors project identified in conjunction with the course instructor and reviewed by the Geography program director or the department chair (if the director is the course instructor).
- (2) Credits for GEOG 483 are counted in the appropriate departmental concentration requirement.

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**Regional Planning**

The mission of the Regional Planning program is to provide opportunities for students, planning professionals, citizens of a diverse regional community to master fundamental and innovative planning principles. The program trains students to become professional planners through a process that emphasizes conceptual knowledge, experiential learning, innovative planning skills, and civic engagement. Students work with colleagues and planners to guide change in a way that will make communities better places to live for present and future generations.

Employment opportunities for planners are excellent. This program has prepared students to work in planning agencies at the federal, state, regional, county, and local levels as well as in the private sector with planning consulting and engineering firms. As planners, they have been trained to work with the public to guide growth and change in metropolitan regions across the country. The two concentrations—Environmental Planning and GIS/Land Use Planning—are designed to focus on the knowledge, techniques and strengths of the faculty members, as well as provide students maximum

opportunity to be competitive in the planning job market. As part of their course of study, students address and solve real-world problems through class projects and intern with practicing planners who deal with these issues in a professional environment. Planners work with communities to improve the quality of life for people who live there. They take a comprehensive view of issues, listen to all citizen perspectives, endeavor to reconcile controversy, and propose alternatives that can guide community decision-making in allocating finite resources to create better places to live.

**Regional Planning—Land Use Planning and Geographic Information Systems Concentration**

The Land Use Planning and Geographic Information Systems Concentration prepares students for employment as professional planners adept at applying advanced techniques to the development of livable communities. Data collection, spatial information management, and graphic presentation are integral skills taught in the program. Course work also equips students for facilities planning and management, remote sensing applications in planning, and site location analysis. Course work includes methods for identifying, modeling, and analyzing the spatial organization of community systems from both practical and theoretical perspectives. Students in planning graduate with a working knowledge of subdivision, land use, and zoning regulation. They are familiar with strategies of economic development. They understand both the theory and ethics of planning. Students completing this concentration should be able to assist diverse communities and organizations in identifying and finding solutions to a wide variety of land use, siting, and transportation problems.

**Regional Planning—Environmental Planner Concentration**

The Environmental Planner Concentration is designed to prepare majors in regional planning for careers as environmental planners or further graduate studies. Students who select this concentration learn about aspects of the natural environment, methods to preserve and conserve resources, and how to plan communities where humans both benefit from the natural environment and have minimal impact on it. They are knowledgeable about environmental regulation and policy. They understand community strategies for ameliorating environmental problems and have both a theoretical and working knowledge of subdivision, land use, and zoning regulation. They are familiar with the regulation and management of flood plains and wetlands, the management of waste and storm water, and environmental impact assessment. They understand both the theory and ethics of planning. Students completing this concentration should be able to assist diverse communities and organizations in identifying and finding solutions to a wide variety of environmental issues such as wastewater treatment, water pollution, acid rain, watershed planning, carbon footprints, deforestation, and natural resource extraction.

**Regional Planning Minor**

A minor in regional planning is appropriate for majors in all other fields of the natural and social sciences. Students in marketing and information systems will find a minor in this field relevant. A minor consists of 18 credits in courses taken with the RGPL prefix. The department suggests students take the core in this program if graduate study is anticipated.

**Regional Planning Honors Programs**

The honors program is open by departmental permission to regional planning majors with at least a 3.25 GPA in total university course work and a 3.25 GPA in regional planning courses. After completing 45 credits of university course work, all qualified majors will be invited to join the Regional Planning Honors Track.

Students select one of the following options: (1) Two courses from RGPL 333, 345, 426, or 440 and two 600-level (graduate seminar) courses, (2) Two courses from RGPL 333, 345, 426, or 440 and one 600-level (graduate seminar) course and RGPL 483 Honors Thesis, (3) Three courses from RGPL 333, 345, 426, or 440 and RGPL 483 Honors Thesis, (4) Three courses from RGPL 333, 345, 426, or 440 and one 600-level (graduate seminar) course. Honors students who enroll in the above designated undergraduate courses will undertake an honors project identified in conjunction with the course instructor and reviewed by the Regional Planning program director or the department chair (if the director is the course instructor).

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**Bachelor of Science—Regional Planning/Environmental Planner Concentration**

**Liberal Studies:** As outlined in Liberal Studies section with the following specifications: 49-50

**Mathematics:** MATH 217 recommended

**Social Science:** RGPL 103 required

**Liberal Studies Electives:** 9cr, BTED/COSC/IFMG 101 recommended, no courses with RGPL prefix

**College:**

Foreign Language Intermediate Level (1) 0-6

**Major:** 54

**Required Courses in Planning:**

RGPL 203	Planning History	3cr
RGPL 213	Cartography I	3cr
RGPL 316	Introduction to Geographic Information Systems	3cr
RGPL 350	Introduction to Planning	3cr
RGPL 352	Planning Methods	3cr
RGPL 410	Community Participation and Civic Engagement Seminar	3cr
RGPL 412	Community Planning Practicum	3cr
RGPL 426	Environmental Land Use Planning	3cr
RGPL 453	Planning Design Studio I	3cr
RGPL 454	Planning Design Studio II	3cr
RGPL 458	Land Use Law	3cr
RGPL 462	Planning Policy, Implementation, and Administration	3cr
RGPL 468	Planning Theory	3cr
RGPL 493	Internship	3cr

**Concentration Courses:** Four courses from the following:

GEOG 425	Global Positioning Systems Concepts and Techniques	3cr
GEOG 435	Geography of Energy	3cr
GEOG 444	Energy Development and Compliance I	3cr
RGPL 314	Map and Photograph Interpretation	3cr
RGPL 341	Climatology	3cr
RGPL 342	Physiography	3cr
RGPL 343	Geography of Fresh Water Resources	3cr
RGPL 345	Biogeography for Environmental Managers	3cr
RGPL 415	Remote Sensing	3cr
RGPL 440	Conservation: Environmental Analysis	3cr

**Free Electives:** 10-17

**Total Degree Requirements: (2)** 120

- (1) Intermediate-level foreign language may be included in Liberal Studies electives.
  - (2) As they pass through the program, students will be expected to develop and maintain a portfolio of planning course work as a requirement for graduation.
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**Bachelor of Science—Regional Planning/Land Use Planning and GIS Concentration**

**Liberal Studies:** As outlined in Liberal Studies section with the following specifications: 49-50

**Mathematics:** 3cr, MATH 217 recommended

**Social Science:** RGPL 103 required

**Liberal Studies Electives:** 9cr, BTED/COSC/IFMG 101 recommended, no courses with RGPL prefix

**College:**

Foreign Language Intermediate Level (1) 0-6

**Major:** 54

**Required Courses in Planning:**

RGPL 203	Planning History	3cr
RGPL 213	Cartography I	3cr
RGPL 316	Introduction to Geographic Information Systems	3cr
RGPL 350	Introduction to Planning	3cr
RGPL 352	Planning Methods	3cr
RGPL 410	Community Participation and Civic Engagement Seminar	3cr
RGPL 412	Community Planning Practicum	3cr
RGPL 426	Environmental Land Use Planning	3cr
RGPL 453	Planning Design Studio I	3cr
RGPL 454	Planning Design Studio II	3cr
RGPL 458	Land Use Law	3cr
RGPL 462	Planning Policy, Implementation, and Administration	3cr
RGPL 468	Planning Theory	3cr
RGPL 493	Internship	3cr

**Concentration Courses:** Four courses from the following:

GEOG 334	Political Geography	3cr
RGPL 313	Cartography II	3cr
RGPL 314	Map and Photograph Interpretation	3cr
RGPL 332	Urban Geography	3cr
RGPL 404	Transportation Planning	3cr
RGPL 415	Remote Sensing	3cr
RGPL 420	Technical Issues in Geographic Information Systems	3cr

**Free Electives:** 10-17

**Total Degree Requirements: (2)** 120

- (1) Intermediate-level foreign language may be included in Liberal Studies electives.
  - (2) As they pass through the program, students will be expected to develop and maintain a portfolio of planning course work as a requirement for graduation.
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**Minor—Regional Planning 18**

**Controlled Electives:**

Six RGPL courses (1) 18cr

- (1) Only courses taken as RGPL may be counted toward the minor.
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**Regional Planning Honors Track 12**

**Prerequisites:** Declared major in regional planning, completion of at least 45cr of university course work, 3.25 or higher GPA in major and overall, plus endorsement of advisor and one other Regional Planning faculty member

**Select one of the following options:**

Two from RGPL 333, 345, 426, and 440 (1) and two 600-level seminars  
Two from RGPL 333, 345, 426, and 440 (1) and one 600-level seminar and RGPL 483/H/ (2)

Three from RGPL 333, 345, 426, and 440 (1) and RGPL 483/H/ (2)  
Three from RGPL 333, 345, 426, and 440 (1) and one 600-level seminar

- (1) Students in these designated undergraduate courses will undertake an honors project identified in conjunction with the course instructor and reviewed by the Regional Planning program director or the department chair (if the director is the course instructor).
  - (2) Credits for RGPL 483 are counted in the appropriate departmental track requirement.
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**Bachelor of Science in Education—Social Studies Education/Geography Track**

The Social Studies Education/Geography Track offers a geography major equivalent for the student interested in teaching at the junior- or senior-high levels. The Pennsylvania certification will be in citizenship. New education requirements instituted for the commonwealth specify that geography be taught at all levels in Pennsylvania. Nationally, geography is one of the core subject areas named in the National Education Goals program.

**Bachelor of Science in Education—Social Studies Education/Geography Track (\*)**

**Liberal Studies:** As outlined in Liberal Studies section with the following specifications: 43

**Humanities—History:** Fulfilled by required courses in major

**Mathematics:** 6cr

**Natural Science:** Option II

**Social Science:** ECON 121, GEOG 102, PSYC 101

**Liberal Studies Elective:** 3cr, ECON 122, no courses with GEOG prefix

**College:** 32

**Preprofessional Education Sequence:**

ACE 103 Digital Instructional Technology 3cr  
 EDSP 102 Educational Psychology 3cr

**Professional Education Sequence:**

CHSS 342 Social Studies Teaching Lab 1cr  
 EDEX 301 Education of Students with Disabilities in Inclusive Secondary Settings 2cr  
 EDEX 323 Instruction of English Language Learners with Special Needs 2cr  
 EDSP 477 Assessment of Student Learning: Design and Interpretation of Educational Measures 3cr  
 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 455 Teaching of Social Studies in Secondary Schools 3cr

**Major:** 21

**Required Courses:**

GEOG 213 Cartography I 3cr  
 GEOG 230 Cultural Geography 3cr  
 GEOG 411 History of Geography 3cr

**Controlled Electives:**

At least two courses from each of the following two groups: 12cr  
 Environmental Geography: GEOG 341, 342, 343, 345, 440  
 Regional Geography: GEOG 251, 252, 253, 254, 255, 256, 257 (1)

**Social Science Distribution Requirements:** 24

ANTH 110 Contemporary Anthropology 3cr  
 HIST 201 Western Civilization before 1600 (1) 3cr  
 HIST 202 Western Civilization since 1600 (1) 3cr  
 HIST 204 United States History to 1877 3cr  
 HIST 205 United States History since 1877 3cr  
 PLSC 111 Power and Democracy in America 3cr  
 PLSC 280 *or* 285 Comparative Government I: Western Political Systems *or* Comparative Government II: Non-Western Political Systems 3cr  
 SOC 231 Contemporary Social Problems 3cr

**Total Degree Requirements: (2)** 120

(\*) See requirements leading to teacher certification, titled “3-Step Process for Teacher Education,” in the College of Education and Communications section of this catalog. To student teach, students must have a 3.0 cumulative GPA in their major (social science and geography courses). To be licensed to teach geography, education majors must apply for social studies education certification.

- (1) GEOG 104 may count as a regional course if a student took the course before entering the track.
- (2) 300-level HIST course strongly recommended to complete a minor in history. Credits would then total 123.

**Certificate—Shale, Gas, and Energy 18**

**Required Geoscience Courses:** 6

GEOS 119 Geology of Energy Resources (1) 3cr  
 GEOS 409 Geology of Shale Gas Field Workshop 3cr

**Required Geography Courses:** 6

GEOG 109 Geographic Information Science and Systems for Energy Applications (1) 3cr  
 GEOG 409 Spatial Analysis Applications in the Energy Sectors Workshop 3cr

**Required Safety Science Courses:** 6

SAFE 104 Introduction to Safety in the Natural Gas Industry (1) 3cr  
 SAFE 204 Principles of Safety in the Natural Gas Industry 3cr

- (1) With departmental permission, one 100-level introductory course may be substituted by an appropriate upper-division course.