

# FLORIDA ATLANTIC UNIVERSITY™

## Graduate Programs—PROGRAM CHANGE REQUEST

UGPC APPROVAL \_\_\_\_\_

UFS APPROVAL \_\_\_\_\_

CATALOG \_\_\_\_\_

DEPARTMENT: GEOSCIENCES

COLLEGE: SCIENCE

PROGRAM NAME: DOCTOR OF PHILOSOPHY IN GEOSCIENCES

**EFFECTIVE DATE**

(PROVIDE TERM/YEAR)

PLEASE EXPLAIN THE REQUESTED CHANGE(S) AND OFFER RATIONALE BELOW AND/OR ATTACHED:

THE REQUESTED CHANGES TO THE REQUIREMENTS FOR THE PH.D. IN GEOSCIENCES ARE INTENDED TO REVISE THE REQUIREMENT THAT ELECTIVE COURSES (OR 'ADDITIONAL COURSES' BEYOND THE REQUIRED CORE) CAN ONLY BE CHOSEN FROM COURSES TAUGHT BY THE DEPARTMENT OF GEOSCIENCES OR COURSES ON AN APPROVED LIST OF COGNATE COURSES. THE CHANGE REMOVES THE APPROVED COGNATE LIST, AND LEAVES COURSE SELECTION OF ELECTIVE/ADDITIONAL COURSES OUTSIDE OF THE DEPARTMENT OF GEOSCIENCES TO THE STUDENT'S ADVISOR AND COMMITTEE.

 Faculty contact, email and complete phone number:  
 Scott Markwith, [smarkwit@fau.edu](mailto:smarkwit@fau.edu), 561-297-2102

Consult and list departments that might be affected by the change and attach comments.

**Approved by:**

 Department Chair: Clark Nelson

 College Curriculum Chair: [Signature]

 College Dean: Clark Nelson

 UGPC Chair: [Signature]

 Graduate College Dean: [Signature]

UFS President: \_\_\_\_\_

Provost: \_\_\_\_\_

**Date:**
9/18/14
10/01/2014
~~10/11/14~~ 10/8/14
10/8/14
10-15-14

Email this form and syllabus to [UGPC@fau.edu](mailto:UGPC@fau.edu) one week before the University Graduate Programs Committee meeting so that materials may be viewed on the UGPC website prior to the meeting.

## Doctoral Program

### Doctor of Philosophy in Geosciences

The Department of Geosciences at Florida Atlantic University offers advanced graduate training leading to the degree of Doctor of Philosophy (Ph.D.) in Geosciences. This professionally oriented program combines Department specialties in geography and geology with other cognate areas in the College and the University through an innovative curriculum that includes ecology and conservation biology, chemistry, anthropology, civil engineering, ocean engineering and urban and regional planning. The program provides advanced research and technical training to allow its graduates to find solutions to problems. While the main focus of the degree is on traditional, full-time students, the degree program also welcomes part-time students who wish to maintain their professional employment while earning their doctoral degree.

The Department expects doctoral students in the program to specialize in one of the following three areas:

**Hydrology and Water Resources-Research** in the areas of hydrology and water resources to develop a complete understanding of surface and subsurface processes and their practical applications. Studies deal with flow issues, supply issues and water quality, as well as the effects of global warming. Studies also include coastal and wetland environments. This research area combines coursework and faculty expertise in spatial information technology, including GIS, hydrologic modeling, digital image analysis and geovisualization, as well as geology, geography, biology, civil and ocean engineering and chemistry.

**Urban Development and Sustainability-Research** on urban land-use change, urban environmental systems and urban economic development. Studies utilize geographic information science and other spatial analysis tools to incorporate sustainable urban development in the subtropical environment of the Everglades ecosystem. This includes the local impact of globalization and global environmental change on South Florida communities. This research area combines coursework and faculty expertise in GIS, remote sensing, geovisualization and cartography, as well as faculty expertise in geography, geology, biology and urban and regional planning.

**Cultural and Spatial Ecology-Research** focused on the biogeography of natural ecosystems as well as ethnobotanical studies focused on the cultural variations in human uses and sustainability of plants. Emphasis on reconstructing past environments and analyzing present environments utilizing field work, satellite imagery, aerial photographs and archival research, as well as extracting environmental information from advanced and specialized remote sensing imagery for mapping and modeling of vegetation, ecosystems and natural resources. This research area combines coursework and faculty expertise in field methods and spatial information technology, such as GPS, GIS, satellite image analysis and geovisualization, as well as geography, geology, anthropology and biology.

### Admission Requirements

Individuals will be admitted to the doctoral program in Geosciences based on the following requirements:

1. Minimum of a bachelor's degree in a field of geosciences or related area. Students who have already earned a master's degree or equivalent in geography, geology or related field may be admitted to the doctoral program and may be awarded up to 30 credits toward the Ph.D. in Geosciences. Geosciences-related areas include anthropology, biology, chemistry, civil engineering, environmental science, public administration and urban and regional planning.
2. International students whose native language is not English must score at least 550 on the paper-based TOEFL or at least 213 on the computer-based test.
3. A Graduate Record Exam (GRE) score of 146 or higher on the verbal portion and 144 or higher on the quantitative portion, or a combined score of 1000 or above on the quantitative-verbal sections (minimum of 500 on each section) of the previous version of the GRE, and a cumulative GPA of at least 3.0 in the applicant's last degree program.
4. Three satisfactory professional and/or academic letters of reference.
5. A written letter of support from a Geosciences faculty member with doctoral faculty status at FAU or an approved cognate faculty member with doctoral faculty status at FAU indicating a willingness to supervise the applicant's doctoral research.

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#### Degree Requirements

A total of 90 credits beyond the bachelor's degree or 60 credits beyond an earned master's degree in a related field (as defined under Admission Requirements), admission to candidacy and successful defense of a research dissertation in an approved area within the geosciences will earn students the Ph.D. in Geosciences.

A minimum of 54 credits out of the 90 credits presented for the degree must be earned from the Geosciences Department (courses with EVR, ESC, GEA, GEO, GIS and GLY prefixes). No more than 36 credits of the 90 total credits submitted for the degree may come from outside the Geosciences Department.

Thus, students who are admitted to the program with a master's degree in an approved related or cognate area as opposed to a master's degree in Geography or Geology may apply the 30 credits from that related area to the doctoral in Geosciences and may take up to 6 more credits in ~~in approved cognate areas~~ outside of geosciences.

1. Students must earn a cumulative grade point average of 3.0 or higher and a grade "B" or higher in any course applied to the degree program.

All students are required to complete a core of 9 credits in the Geosciences as listed below. All must be completed prior to applying for candidacy.

Geosciences Core (9 credits required)		
Research in the Geosciences	GEO 6118	3

Thesis Seminar	GLY 6931	3
Geosciences Colloquium Series*	GEO 6920	3

\* This is a 1-credit course with content that varies each semester. Students are required to take this course for three semesters for a total of 3 credits. Students may not apply for candidacy until all colloquium requirements have been completed.

#### Additional Courses

The remaining credits will comprise coursework in geography, geology and interdisciplinary cognates ~~from an approved list~~ as appropriate to the student's research plan. These courses should be chosen in consultation with the student's advisor and/or dissertation committee.

No more than 3 credits of Directed Independent Study (GEO 6908 or GLY 6908) may be used to meet this requirement without doctoral committee and Department Chair approval.

All courses will be at the 5000 level or above; however, no more than 9 credits of 5000-level work may be applied to the degree without approval from the committee chair and Department Chair. The student's major advisor and committee must approve all coursework in the student's program, ~~and any exceptions to the approved cognate list must be made by the Geosciences Graduate Program Committee in consultation with the Department Chair.~~

Note: Courses designated as undergraduate proficiency courses, generally for students coming into the program with a non-related undergraduate degree, may not be used to satisfy course requirements for the degree. Undergraduate proficiency courses will be outlined in the admissions notification.

#### Admission to Candidacy

1. Formation of a dissertation committee. This committee includes a minimum of the advisor plus three other members. A majority of the members must have doctoral faculty status in the doctoral program. Two of the members may be from another department or program at FAU or may be a doctoral-holding professional in the local community with expertise pertinent to the research program designed. Affiliate faculty members from outside FAU may serve as co-chair with a Geosciences faculty member.
2. Satisfactory completion of an examination covering graduate-level material in the field of geosciences. The material for the exam will be determined by the student's committee as appropriate to the student's research plan. The exam must be taken during the academic term immediately following the completion of the coursework outlined in section 1 of the degree requirements. Two attempts at the examination are permitted. A second failure on the qualifying exam will result in dismissal from the program. Full-time students should become candidates by the end of their fifth semester in the program. Part-time students should become candidates by the end of semester seven.
3. Submission and presentation of an original research proposal. The student must receive written notification from the doctoral supervisor of satisfactory performance to meet this requirement.

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### Doctoral Research

1. Dissertation research should be conducted under the direction of a faculty member in the Geosciences Department or other approved Department-affiliated units. While conducting the doctoral research, a minimum of 12 credits of GEO 7978, Advanced Research, and 6 credits of GEO 7980, Dissertation, must be included. Students may not enroll in GEO 7980 until they have reached candidacy.

2. Written submission, public presentation and defense of a satisfactory research dissertation. The defense will include an oral examination of the research presented.