

 <b>FLORIDA ATLANTIC UNIVERSITY</b>	<b>NEW/CHANGE PROGRAM REQUEST</b> <b>Undergraduate Programs</b>		UUPC Approval <u>9/12/22</u> UFS Approval _____ Banner _____ Catalog _____
	Department Geosciences College Science		
<b>Program Name</b> BA/BS Geosciences		<input type="checkbox"/> New Program* <input checked="" type="checkbox"/> Change Program*	<b>Effective Date</b> (TERM & YEAR) Spring 2023
<p><b>Please explain the requested change(s) and offer rationale below or on an attachment.</b></p> <p>There are two focus areas, geography and geology, in our current BA Geosciences program and three focus areas, climate change, geography, and geology, in our current BS Geosciences program. While focus areas differ in requirements, there is no mechanism to differentiate them in admission and to track student enrollment in different focus areas during the time they are in the program. Nor is the focus areas noted in transcript.</p> <p>We are requesting to change the above described "focus" to "concentration" so that students know which area they apply for in admission process and the area can be clearly specified in transcript. It also helps to track student enrollment in different areas.</p> <p>In short, we request the following name changes and no other changes are requested.</p> <p>BA Geosciences:          -- "Geography Focus" changed to "Geography Concentration"          -- "Geology Focus" changed to "Geology Concentration"</p> <p>BS Geosciences:          -- "Geography Focus" changed to "Geography Concentration"          -- "Geology Focus" changed to "Geology Concentration"          -- "Climate Change Focus" changed to "Climate Change Concentration"</p>			
<p><small>*All new programs and changes to existing programs must be accompanied by a catalog entry showing the new or proposed changes.</small></p>			
<b>Faculty Contact/Email/Phone</b> James Gammack-Clark /jgammack@fau.edu/7-0314		<b>Consult and list departments that may be affected by the change(s) and attach documentation</b> none	
<b>Approved by</b> Department Chair <u>[Signature]</u> College Curriculum Chair <u>[Signature]</u> College Dean <u>[Signature]</u> UUPC Chair <u>Ethlyn Williams</u> Undergraduate Studies Dean <u>Dan Meeroff</u> UFS President _____ Provost _____		<b>Date</b> 08/30/2022 08/31/2022 <u>8/31/2022</u> <u>9/12/22</u> <u>9/12/22</u> _____ _____	

Email this form and attachments to [mjenning@fau.edu](mailto:mjenning@fau.edu) seven business days before the UUPC meeting.

## Bachelor of Arts with Major in Geosciences

(Minimum of 120 credits required)

The Geosciences core courses below (10 credits) are required of all students for the B.A. in Geosciences. Students then choose between a **concentration** in either Geography or Geology. The B.A. in Geosciences, Geography **Concentration**, is also available fully online.

### Prerequisite Coursework for Transfer Students

Students transferring to Florida Atlantic University must complete both lower-division requirements (including the requirements of the Intellectual Foundations Program) and requirements for the college and major. Lower-division requirements may be completed through the A.A. degree from any Florida public college, university or community college or through equivalent coursework at another regionally accredited institution. Before transferring and to ensure timely progress toward the baccalaureate degree, students must also complete the prerequisite courses for their major as outlined in the [Transition Guides](#).

All courses not approved by the Florida Statewide Course Numbering System that will be used to satisfy requirements will be evaluated individually on the basis of content and will require a catalog course description and a copy of the syllabus for assessment.

Geosciences Core Courses (required of all students)		
Weather, Climate and Climate Change	MET 2010	3
Introductory Statistics	STA 2023	3
Introduction to Mapping and GIS	GIS 3015C	3
Geosciences Honors Colloquium	GEO 4920	1
<b>Core Total</b>		<b>10</b>

### Bachelor of Arts with Major in Geosciences: Geography **Concentration**

In addition to the Geosciences core courses noted above, students selecting the Geography **Concentration** are required to complete the Geography **Concentration** core courses (12 credits) noted below. Students then select 33-34 credits from the three areas of emphasis (Environmental Systems, Human Systems and GIScience). A minimum of 6 credits must be chosen from each area. Total credits for the B.A. in Geosciences with a Geography **Concentration** are 55-56 credits.

Geography <b>Concentration</b> Core Courses		
World Geography	GEA 2000	3
Introduction to Physical Geography	GEO 2200C	3
Quantitative Methods	GEO 4022	3
RI: Human-Environmental Interactions in South Florida	GEA 4275	3
<b>Core Total</b>		<b>12</b>

Areas of Emphasis (select 33-34 credits from the emphasis areas below with a minimum of 6 credits from each)		
<b>Environmental Systems</b>		
The Blue Planet	ESC 2000	3
Physical Geology/Evolution of the Earth	GLY 2010C	4
History of the Earth and Life	GLY 2100	3
Environmental Issues in Atmospheric and Earth Science	ESC 3704	3
Coastal and Marine Science	GLY 3730	3
Water Resources	GEO 4280C	3

Biogeography	GEO 4300	3
Geomorphology	GLY 4700C	3
Hydrogeology	GLY 4822	3
<b>Human Systems</b>		
Climate Change: Myths, Realities and Solutions	EVR 3114	3
Hazards, Climate and People	EVR 4112	3
Culture and Environment: Latin America and the Caribbean	GEA 4405	3
American Cultural Landscape	GEO 4422	3
Tourism and Commercial Recreation	GEO 4542	3
Urban Geography	GEO 4602	3
Transportation and Spatial Organization	GEO 4700	3
<b>GIScience</b>		
Photogrammetry and Aerial Photograph Interpretation	GIS 4021C	3
Remote Sensing of the Environment	GIS 4035C	3
Digital Image Analysis	GIS 4037C	3
Principles of GIS	GIS 4043C	3
Applications in GIS	GIS 4048C	3
Web GIS	GIS 4054C	3
Programming in GIS	GIS 4102C	3
Geospatial Databases	GIS 4118	3
Geovisualization and GIS	GIS 4138C	3
Mobile GIS and Drone Technology	GIS 4140C	3
Spatial Data Analysis	GEO 4167C	3
<b>Areas of Emphasis Total</b>		<b>33-34</b>

### **Bachelor of Arts with Major in Geosciences: Geology Concentration**

In addition to the Geosciences core courses noted above (10 credits), students selecting the Geology Concentration are required to complete a Science core (19 credits), the Geology Concentration core (10 credits), and Geosciences electives (18-22 credits) as noted below. Total credits for the B.A. in Geosciences with a Geology Concentration are 57-61 credits.

<b>Science Core Courses</b>		
Biological Principles and Lab	BSC 1010/1010L	4 or
Biodiversity and Lab	BSC 1011/1011L	4
College Algebra	MAC 1105	3
Introduction to Astronomy	AST 2002	3
General Chemistry 1 and Lab	CHM 2045, 2045L	4
General or College Physics and Lab	PHY 2048 or PHY 2053 and 2048L	5
<b>Science Core Total</b>		<b>19</b>

<b>Geology Concentration Core Course</b>		
Physical Geology/Evolution of the Earth	GLY 2010C	4

History of the Earth and Life	GLY 2100	3
Geology Field Methods	GLY 4750C	3
<b>Core Total</b>		<b>10</b>

<b>Geosciences Electives (select six courses from the list below to total 18-22 credits)</b>		
Solar System Astronomy	AST 3110	3
Paleontology	GLY 3603C	3
Environmental Issues in Atmospheric and Earth Science	ESC 3704	3
Coastal and Marine Science	GLY 3730	3
Mineralogy and Crystal Chemistry	GLY 4200C	4
Environmental Geochemistry	GLY 4241	3
Water Resources	GEO 4280C	3
Petrology of Igneous and Metamorphic Rocks	GLY 4310C	4
Structural Geology	GLY 4400C	4
Stratigraphy and Sedimentation	GLY 4500C	4
Geomorphology	GLY 4700C	3
Hydrogeology	GLY 4822	3
<b>Geosciences Electives Total</b>		<b>18-22</b>



### **Bachelor of Science with Major in Geosciences**

*(Minimum of 120 credits required)*

The Geosciences core course below (11-credits) are required of all students for the B.S. in Geosciences. Students then choose one of three **concentrations**: Climate Change, Geography or Geology.

### **Prerequisite Coursework for Transfer Students**

Students transferring to Florida Atlantic University must complete both lower-division requirements (including the requirements of the Intellectual Foundations Program) and requirements for the college and major. Lower-division requirements may be completed through the A.A. degree from any Florida public college, university or community college or through equivalent coursework at another regionally accredited institution. Before transferring and to ensure timely progress toward the baccalaureate degree, students must also complete the prerequisite courses for their major as outlined in the [Transition Guides](#).

All courses not approved by the Florida Statewide Course Numbering System that will be used to satisfy requirements will be evaluated individually on the basis of content and will require a catalog course description and a copy of the syllabus for assessment.

<b>Geosciences Core Courses (required of all students)</b>		
Introductory Statistics	STA 2023	3
General Chemistry 1 and Lab	CHM 2045, 2045L	4
Introduction to Mapping and GIS	GIS 3015C	3
Geosciences Honors Colloquium	GEO 4920	1
<b>Core Total</b>		<b>11</b>

**Bachelor of Science with Major in Geosciences: Climate Change Concentration**

In addition to the Geosciences core courses noted above (11 credits), students selecting the Climate Change Concentration are required to complete a Science core (9-11 credits), the Climate Change Concentration core (30 credits) and

Geosciences and Interdisciplinary electives (21 credits) as noted below. Total credits for the B.S. in Geosciences with a Climate Change Concentration are 71-73 credits.

Science Core Courses		
Biological Principles and Lab	BSC 1010/1010L	4 or
Biodiversity and Lab	BSC 1011/1011L	4 or
Life Science and Life Science Lab or RI: Life Science Lab	BSC 1005/1005L	3
The Blue Planet	ESC 2000	3 or
Introduction to Physical Geography	GEO 2200C	3 or
Physical Geology / Evolution of the Earth	GLY 2010C	4
Methods of Calculus	MAC 2233	3
<b>Science Core Total</b>		<b>9-11</b>

Climate Change Concentration Core Courses		
Climate Change Biology: Ecosystems to Human Health	BSC 4307	3
Environmental Issues in Atmospheric and Earth Science	ESC 3704	3
Climate Change: The Human Dimensions	EVR 1110	3
Climate Change: Myths, Realities and Solutions	EVR 3114	3
Hazards, Climate and People	EVR 4112	3
Sea-Level Rise: Impacts and Responses	GEO 3342	3
Quantitative Methods	GEO 4022	3
Remote Sensing of the Environment	GIS 4035C	3
Principles of Geographic Information Systems	GIS 4043C	3
Weather, Climate and Climate Change	MET 2010	3
<b>Core Total</b>		<b>30</b>

Geosciences and Interdisciplinary Electives (select 21 credits from the courses below)		
Conservation Biology	BSC 3052	3
Microeconomic Principles	ECO 2023	3 or
Economic Principles and Policies	ECO 3003	3
Environmental Economics	ECP 4302	3
Environmental Science and Engineering	ENV 3001C	3
RI: Human-Environmental Interactions in South Florida	GEA 4275	3
Spatial Data Analysis	GEO 4167C	3
Water Resources	GEO 4280C	3
Biogeography	GEO 4300	3

Directed Independent Research in Geosciences	GEO 4915	1-6
Mobile GIS and Drone Technology	GIS 4140C	3
Coastal and Marine Science	GLY 3730	3
Environmental Geochemistry	GLY 4241	3
Hydrogeology	GLY 4822	3
Directed Independent Study	GLY 4905	1-3
Comparative Environmental Politics	INR 4054	3
Global Environmental Politics and Policies	INR 4350	3
Disaster and Emergency Management	PAD 4393	3
Principles of Ecology	PCB 4043	3
Sociology of Climate and Disaster	SYP 4464	3
RI: Sustainable Cities	URP 4403	3
Environmental Planning Methods	URP 4420	3
Planning for Hazards/Disasters	URP 4430	3
<b>Geosciences and Interdisciplinary Electives Total</b>		<b>21</b>

### **Bachelor of Science with Major in Geosciences: Geography Concentration**

In addition to the Geosciences core courses noted above, students selecting the Geography Concentration are required to complete a Science core (7 credits), the Geography Concentration core (24 credits), and Geosciences electives (30-31 credits) as noted below. Total credits for the B.S. in Geosciences with a Geography Concentration are 72-73 credits.

<b>Science Core Courses</b>		
Biological Principles and Lab	BSC 1010/1010L	4 or
Biodiversity and Lab	BSC 1011/1011L	4
Methods of Calculus	MAC 2233	3
<b>Science Core Total</b>		<b>7</b>

<b>Geography Concentration Core Courses</b>		
World Geography	GEA 2000	3
Introduction to Physical Geography	GEO 2200C	3
Weather, Climate and Climate Change	MET 2010	3
Quantitative Methods	GEO 4022	3
Principles of GIS	GIS 4043C	3
Remote Sensing of the Environment	GIS 4035C	3
RI: Human-Environmental Interactions in South Florida	GEA 4275	3
Biogeography	GEO 4300	3
<b>Core Total</b>		<b>24</b>

<b>Geosciences Electives (select 30-31 credits from the courses below)</b>		
The Blue Planet	ESC 2000	3
Physical Geology/Evolution of the Earth	GLY 2010C	4



History of the Earth and Life	GLY 2100	3
Climate Change: Myths, Realities and Solutions	EVR 3114	3
Environmental Issues in Atmospheric and Earth Science	ESC 3704	3
Coastal and Marine Science	GLY 3730	3
Applications in GIS	GIS 4048C	3
Photogrammetry and Aerial Photograph Interpretation	GIS 4021C	3
Digital Image Analysis	GIS 4037C	3
Web GIS	GIS 4054C	3
Programming in GIS	GIS 4102C	3
Hazards, Climate and People	EVR 4112	3
Geospatial Databases	GIS 4118	3
Geovisualization and GIS	GIS 4138C	3
Mobile GIS and Drone Technology	GIS 4140C	3
Spatial Data Analysis	GEO 4167C	3
Water Resources	GEO 4280C	3
Tourism and Commercial Recreation	GEO 4542	3
Urban Geography	GEO 4602	3
Transportation and Spatial Organization	GEO 4700	3
Geomorphology	GLY 4700C	3
Hydrogeology	GLY 4822	3
<b>Geosciences Electives Total</b>		<b>30-31</b>

#### **Bachelor of Science with Major in Geosciences: Geology Concentration**

In addition to the Geosciences core courses noted above (11 credits), students selecting the Geology Concentration are required to complete a Science core (15-16 credits), the Geology Concentration core (38 credits), and Geosciences electives (9 credits) as noted below. Total credits for the B.S. in Geosciences with a Geology Concentration are 73-74 credits.

<b>Science Core Courses</b>		
General Physics 1	PHY 2048	4
General Physics 2	PHY 2049	4 or
Physics for Engineers 2	PHY 2044	3
Calculus with Analytic Geometry 1	MAC 2311	4
Calculus with Analytic Geometry 2	MAC 2312	4
<b>Science Core Total</b>		<b>15-16</b>

<b>Geology Concentration Core Course</b>		
Physical Geology/Evolution of the Earth	GLY 2010C	4
History of the Earth and Life	GLY 2100	3
Mineralogy and Crystal Chemistry	GLY 4200C	4
Petrology of Igneous and Metamorphic Rocks	GLY 4310C	4
Structural Geology	GLY 4400C	4
Solid Earth Geophysics	GLY 4451	3

Stratigraphy and Sedimentation	GLY 4500C	4
Geology Field Methods	GLY 4750C	3
Field Camp	GLY 4790	6
Hydrogeology	GLY 4822	3
<b>Core Total</b>		<b>38</b>

<b>Geosciences Electives (select 9 credits from the list below, 6 of which must be at the 4000 level)</b>		
Geology of Florida	GLY 3155C	3
Paleontology	GLY 3603C	3
Coastal and Marine Science	GLY 3730	3
Remote Sensing of the Environment	GIS 4035C	3
Principles of GIS	GIS 4043C	3
Environmental Geochemistry	GLY 4241	3
Water Resources	GEO 4280C	3
Geomorphology	GLY 4700C	3
Engineering Geology	GLY 4830	3
Introduction to Hydrogeology Modeling and Aquifer Testing	GLY 4832C	3
<b>Geosciences Electives Total</b>		<b>9</b>