

# Earth and Environmental Sciences - Undergraduate Programs

Academic Advising: 107 Life Science Building - 817.272.9685

## Degree Programs

### BACHELOR OF SCIENCE IN GEOLOGY

This degree has three options:

- The **Professional Option** is for students who plan to enter the profession or go to graduate school but are uncertain where they want to concentrate. The program emphasizes breadth and exposes students to most of the geological disciplines.
- The **Environmental Science Option** emphasizes the application of earth science to environmental problems associated with the hydrosphere, atmosphere and natural hazards.
- The **Engineering Geology Option** is for students who are interested in combining Geology with Civil Engineering coursework to work with engineering firms on construction and environmental problems.

### BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE

This degree emphasizes on interdisciplinary training related to environmental sciences and is designed for students who plan to enter the profession or go to graduate school.

### BACHELOR OF ARTS IN GEOLOGY

This degree has three options:

- The **General Option** is for students who want to combine Geology with other professional interests.
- The **Geographic Information Systems Option** is for students who want to combine Geology with computer technology to store and analyze spatial data using GIS software.
- The **Composite Science Teacher Certification Option** is for students who want teacher certification, and it is offered through the UTeach program.

### Requirements for a Bachelor of Science in Geology - Professional Option

This degree is for students who plan to enter the profession or go to graduate school. The program emphasizes breadth and exposes students to most of the geological disciplines.

The University Core Curriculum consists of 42 credit hours from [University Core Curriculum](http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) (<http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/>).

#### PRE-PROFESSIONAL COURSES

##### RECOMMENDED CORE REQUIREMENTS

UNIV 1131	STUDENT SUCCESS	1
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts *		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture *		3
PHYS 1441 or PHYS 1443	GENERAL COLLEGE PHYSICS I GENERAL TECHNICAL PHYSICS I	4
PHYS 1442 or PHYS 1444	GENERAL COLLEGE PHYSICS II GENERAL TECHNICAL PHYSICS II	4
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
Social/Behavioral Science *		3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area *		3

**PROGRAM REQUIREMENTS**

Communication Competence - pass oral presentation requirement in GEOL 3441 or GEOL 3443, or complete COMS 1301, COMS 2302, or other equivalent course

Computer Competence - pass Computer Skills Placement test or any computer-related course such as:

GEOL 4330 UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS

**PROFESSIONAL COURSES**

BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
GEOL 3454	STATISTICS FOR EARTH AND ENVIRONMENTAL SCIENTISTS	4
MINOR: 18 or more hours as required for Biology, Chemistry, Mathematics, or Physics		10
<b>MAJOR</b>		
GEOL 1301	EARTH SYSTEMS	3
GEOL 1302	EARTH HISTORY	3
GEOL 2445	MINERALOGY	4
GEOL 3446	PETROLOGY AND GEOCHEMISTRY	4
GEOL 3441	BIOSTRATIGRAPHY AND LIFE THROUGH TIME	4
GEOL 3442	SEDIMENTOLOGY AND STRATIGRAPHY	4
GEOL 3443	STRUCTURAL GEOLOGY	4
GEOL 3387	FIELD GEOLOGY I	3
GEOL 3388	FIELD GEOLOGY II	3
GEOL 4330	UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	3
GEOL, ENVR, or DATA 3000-4000-level electives:		8
<b>General Elective(s)</b>		<b>4</b>

36 hours of coursework must be advanced (3000/4000-level) to earn degree.

**Total Hours** **120**

\* See [General Core Requirements \(http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/\)](http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) for approved courses.

**TYPICAL COURSE SEQUENCE**

Details of a personal course sequence should be made with the guidance of the Earth and Environmental Sciences undergraduate advisor, particularly since many GEOL courses are not offered every semester. Students should also consult with the appropriate department for minor requirements; Biology minors should consult with the Earth and Environmental Sciences undergraduate advisor.

**First Year**

	First Semester	Hours	Second Semester	Hours
	UNIV 1131		1 GEOL 1302	3
	GEOL 1301		3 MATH 2425	4
	MATH 1426		4 ENGL 1302	3
	ENGL 1301		3 CHEM 1442	4
	CHEM 1441	4		
	<b>15</b>		<b>14</b>	

**Second Year**

	First Semester	Hours	Second Semester	Hours
	BIOL 1441		4 PHYS 1442	4
	POLS 2311		3 POLS 2312	3
	PHYS 1441		4 Creative Arts*	3
	GEOL 2445		4 Minor Course**	4
	<b>15</b>		<b>14</b>	

**Third Year**

Summer Session	Hours	First Semester	Hours	Second Semester	Hours
GEOL 3387	3	3 GEOL 3441		4 GEOL 3442	4
GEOL 3388	3	3 GEOL 3443		4 minor course **	3
		GEOL 4330		3 GEOL 3446	4
		HIST 1301		3 HIST 1302	3
	<b>6</b>			<b>14</b>	<b>14</b>

## Fourth Year

	First Semester	Hours	Second Semester	Hours
	Additional 4000 level Geology elective minor course**		4 Foundational Component Area*	3
	Language, Philosophy and Culture*	3	3 Approved Geol 4000 level courses	8
	Social/Behavioral Science*	3		
	GEOL 3454	4		
	<b>17</b>		<b>11</b>	

Total Hours: 120

\* See [General Core Requirements \(http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/\)](http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) for approved courses.

\*\* Actual number of courses/hours and course sequence determined by appropriate department.

## Requirements for a Bachelor of Science in Geology - Environmental Science Option

This degree emphasizes the application of earth science to environmental problems associated with the hydrosphere, atmosphere and natural hazards.

The University Core Curriculum consists of 42 credit hours from [University Core Curriculum \(http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/\)](http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/).

### PRE-PROFESSIONAL COURSES

#### RECOMMENDED CORE REQUIREMENTS

UNIV 1131	STUDENT SUCCESS	1
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts*		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture*		3
PHYS 1441 or PHYS 1443	GENERAL COLLEGE PHYSICS I GENERAL TECHNICAL PHYSICS I	4
PHYS 1442 or PHYS 1444	GENERAL COLLEGE PHYSICS II GENERAL TECHNICAL PHYSICS II	4
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
Social/Behavioral Science*		3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area*		3

### PROGRAM REQUIREMENTS

Communication Competence - pass oral presentation requirement in GEOL 3443 or complete COMS 1301, COMS 2302, or other equivalent course

Computer Competence - satisfied by GEOL 4330

### PROFESSIONAL COURSES

BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
GEOL 3454	STATISTICS FOR EARTH AND ENVIRONMENTAL SCIENTISTS	4
MINOR: 18 or more hours as required by the department of Biology or Chemistry and Biochemistry		10
MAJOR		
GEOL 1301	EARTH SYSTEMS	3
GEOL 1302	EARTH HISTORY	3
GEOL 2445	MINERALOGY	4
ENVR 3317 or ENVR 4325	ENVIRONMENTAL HYDROLOGY TRACER HYDROLOGY	3

GEOL 3446	PETROLOGY AND GEOCHEMISTRY	4
GEOL 3442	SEDIMENTOLOGY AND STRATIGRAPHY	4
GEOL 3443	STRUCTURAL GEOLOGY	4
GEOL 3387	FIELD GEOLOGY I	3
GEOL 3388	FIELD GEOLOGY II	3
ENVR 4313	ENVIRONMENTAL REGULATION OF CHEMICAL HAZARDS	3
GEOL 4330	UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	3

**ENVR/BIOL/GEOL 3000- or 4000-level elective (4 hours):**

GEOL 4405	METEOROLOGY AND CLIMATOLOGY	4
or GEOL 4420	HYDROGEOLOGY	
or GEOL 4465	PHYSICAL OCEANOGRAPHY AND LIMNOLOGY	
or ENVR 4458	MACHINE LEARNING FOR EARTH AND ENVIRONMENTAL SCIENTISTS	
or BIOL 3457	GENERAL ECOLOGY	

36 hours of coursework must be advanced (3000/4000-level) to earn degree. 6

**Total Hours** **120**

\* See [General Core Requirements \(http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/\)](http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) for approved courses.

**TYPICAL COURSE SEQUENCE**

Details of a personal course sequence should be made with the guidance of the Earth and Environmental Sciences undergraduate advisor, particularly since many GEOL courses are not offered every semester. Biology minors should consult with the Earth and Environmental Sciences undergraduate advisor for minor requirements, and Chemistry minors should consult with the Chemistry and Biochemistry undergraduate advisor for minor requirements.

**First Year**

	First Semester	Hours	Second Semester	Hours
	UNIV 1131		1 GEOL 1302	3
	GEOL 1301	3	MATH 2425	4
	MATH 1426	4	ENGL 1302	3
	ENGL 1301	3	CHEM 1442	4
	CHEM 1441	4		
	<b>15</b>		<b>14</b>	

**Second Year**

	First Semester	Hours	Second Semester	Hours
	HIST 1301		3 PHYS 1442	4
	BIOL 1441	4	HIST 1302	3
	PHYS 1441	4	Minor Course**	4
	GEOL 2445	4	Creative Arts	3
	<b>15</b>		<b>14</b>	

**Third Year**

Summer Session	Hours	First Semester	Hours	Second Semester	Hours
GEOL 3387	3	ENVR 3317	3	GEOL 3442	4
GEOL 3388	3	GEOL 3443	4	GEOL 4330	3
		GEOL 3454	4	GEOL 3446	4
		POLS 2311	3	POLS 2312	3
	<b>6</b>		<b>14</b>		<b>14</b>

**Fourth Year**

	First Semester	Hours	Second Semester	Hours
	ENVR 4313 or 3317		3 ENVR 4199, 4190, or 4189	1
	GEOL 4405, 4420, 4465, or BIOL 3457	4	minor course**	8
	minor course**	3	Foundational Component Area*	3
	Social/Behavioral Science*	3	Language, Philosophy, and Culture	3
	<b>13</b>		<b>15</b>	

**Total Hours: 120**

\* See [General Core Requirements \(http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/\)](http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) for approved courses.

\*\* Actual number of courses/hours and course sequence determined by appropriate department.

## Requirements for a Bachelor of Science in Geology - Geology Engineering Option

This degree is for students who are interested in combining Geology with Civil Engineering coursework to work with engineering firms on construction and environmental problems.

The University Core Curriculum consists of 42 credit hours from [University Core Curriculum](http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) (<http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/>).

### PRE-PROFESSIONAL COURSES

#### RECOMMENDED CORE REQUIREMENTS

UNIV 1131	STUDENT SUCCESS	1
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts *		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture *		3
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
Social/Behavioral Science *		3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area *		3

### PROGRAM REQUIREMENTS

Communication Competence - pass oral presentation requirement in GEOL 3443 or complete COMS 1301, COMS 2302, or other equivalent course

Computer Competence - satisfied by GEOL 4330

### PROFESSIONAL COURSES

CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
CE 2311	STATICS	3
CE 2221	DYNAMICS	2
CE 2313	MECHANICS OF MATERIALS I	3
12 hours of 3000 and 4000 level advisor approved Civil Engineering courses plus prerequisites		12
MAJOR		
GEOL 1301	EARTH SYSTEMS	3
GEOL 1302	EARTH HISTORY	3
GEOL 2445	MINERALOGY	4
GEOL 3442	SEDIMENTOLOGY AND STRATIGRAPHY	4
GEOL 3443	STRUCTURAL GEOLOGY	4
GEOL 3387	FIELD GEOLOGY I	3
GEOL 3388	FIELD GEOLOGY II	3
GEOL 4420	HYDROGEOLOGY	4
GEOL 4330	UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	3
GEOL 4352	ANALYTICAL METHODS IN GEOCHEMISTRY	3
<b>GEOL, ENVR, DATA, CE, ENGR Elective(s) as needed to total 120 hours for degree</b>		<b>11</b>

36 hours of coursework must be advanced (3000/4000-level) to earn degree.

**Total Hours**

**120**

\* See [General Core Requirements \(http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/\)](http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) for approved courses.

## TYPICAL COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the Earth and Environmental Sciences undergraduate advisor, particularly since many GEOL courses are not offered every semester.

### First Year

	First Semester	Hours	Second Semester	Hours
	UNIV 1131		1 PHYS 1443	4
	GEOL 1301		3 GEOL 1302	3
	MATH 1426		4 MATH 2425	4
	CHEM 1441		4 ENGL 1302	3
	ENGL 1301		3	
	<b>15</b>		<b>14</b>	

### Second Year

	First Semester	Hours	Second Semester	Hours
	MATH 2326		3 CHEM 1442	4
	PHYS 1444		4 CE 2313	3
	CE 2311		3 CE 2221	2
	HIST 1301		3 HIST 1302	3
			Social/Behavior Science	3
	<b>13</b>		<b>15</b>	

### Third Year

Summer Session	Hours	First Semester	Hours	Second Semester	Hours
GEOL 3387		3 GEOL 2445		4 GEOL 3442	4
GEOL 3388		3 GEOL 3443		4 Advisor Approved CE, DATA, or MATH elective	8
		Advisor Approved CE, DATA, or MATH Electives		3 POLS 2312	3
		POLS 2311		3	
	<b>6</b>			<b>14</b>	<b>15</b>

### Fourth Year

	First Semester	Hours	Second Semester	Hours
	GEOL 4330		3 Foundational Component Area*	3
	GEOL 4352		3 General Elective	1
	GEOL 4420		4 Advisor Approved GEOL, ENVR, CE or MATH Electives	10
	Advisor Approved DATA, ENVR, GEOL, CE Electives		4	
	<b>14</b>		<b>14</b>	

**Total Hours: 120**

\* See [General Core Requirements \(http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/\)](http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) for approved courses.

## Requirements for a Bachelor of Science in Environmental Science

This degree is designed for students who plan to work in the environmental and sustainability sectors.

The University Core Curriculum consists of 42 credit hours from [University Core Curriculum \(http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/\)](http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/).

### PRE-PROFESSIONAL COURSES

#### RECOMMENDED CORE REQUIREMENTS

UNIV 1131	STUDENT SUCCESS	1
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts*		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture*		3
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
or PHYS 1441	GENERAL COLLEGE PHYSICS I	

PHYS 1444 or PHYS 1442	GENERAL TECHNICAL PHYSICS II GENERAL COLLEGE PHYSICS II	4
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
Social/Behavioral Science *		3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundation Component Area		3
Computer Competence - pass Computer Skills Placement test or any computer-related course:		3
GEOL 4330	UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	
<b>PROFESSIONAL COURSES</b>		
ENVR 3454	STATISTICS FOR EARTH AND ENVIRONMENTAL SCIENTISTS	4
MAJOR		
ENVR 1301	INTRODUCTION TO ENVIRONMENTAL SCIENCE	3
ENVR 1330 or GEOL 1340	GLOBAL WARMING WEATHER AND CLIMATE	3
ENVR 2314	THE GLOBAL ENVIRONMENT AND HUMAN HEALTH	3
ENVR 3317 or ENVR 4325	ENVIRONMENTAL HYDROLOGY TRACER HYDROLOGY	3
ENVR 3387	ENVIRONMENTAL SCIENCE FIELD METHODS	3
ENVR 4303	TOPICS IN SUSTAINABILITY	3
ENVR 4308	ENVIRONMENTAL GEOCHEMISTRY	3
ENVR 4313	ENVIRONMENTAL REGULATION OF CHEMICAL HAZARDS	3
GEOL 4331 or GEOL 4332 or GEOL 4333 or GEOL 4334	ANALYSIS OF SPATIAL DATA GLOBAL POSITIONING SYSTEM REMOTE SENSING FUNDAMENTALS GEOGRAPHIC DATA ANALYSIS	3
GEOL 4405 or GEOL 4465 or GEOL 4425	METEOROLOGY AND CLIMATOLOGY PHYSICAL OCEANOGRAPHY AND LIMNOLOGY PALEOCLIMATE & CLIMATE CHANGE	4
BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	4
BIOL 3356 or BIOL 3355	ENVIRONMENTAL SYSTEMS, BIOLOGICAL ASPECTS TOXICOLOGY	3
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
ENVR/GEOL/DATA/CHEM/BIO ELECTIVES (16 CREDIT HOURS)		16
36 hours of coursework must be upperdivision (3000/4000 - level) to earn the degree		
<b>Total Hours</b>		<b>120</b>

\* See [General Core Requirements \(http://catalog.uta.edu/academicregulations/degree/requirements/general/corerequirements/\)](http://catalog.uta.edu/academicregulations/degree/requirements/general/corerequirements/) for approved courses.

## TYPICAL COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the Earth and Environmental Sciences undergraduate advisor, particularly since many GEOL courses are not offered every semester.

### First Year

First Semester	Hours	Second Semester	Hours
MATH 1426	4	BIOL 1442	4
BIOL 1441	4	MATH 2425	4
ENGL 1301	3	ENGL 1302	3
ENVR 1301	3	ENVR 1330	3
UNIV 1131	1		

## Second Year

	First Semester	Hours	Second Semester	Hours
	HIST 1301		3 CHEM 1442	4
	CHEM 1441		4 PHYS 1442 or 1444	4
	PHYS 1441 or 1443		4 HIST 1302	3
	Social and Behavioral Sciences		3 ENVR 2314	3
	<b>14</b>		<b>14</b>	

## Third Year

Summer Session	Hours	First Semester	Hours	Second Semester	Hours
ENVR 3387		3 ENVR 3317 or 4325		3 POLS 2312	3
		ENVR 4313		3 GEOL 4331, 4332, 4333, or 4334	3
		GEOL 3454		4 BIOL 3356 or 3355	3
		POLS 2311		3 ENVR 4308	3
		ENVR 4330		3 Creative Arts*	3
	<b>3</b>		<b>16</b>		<b>15</b>

## Fourth Year

	First Semester	Hours	Second Semester	Hours
	GEOL 4405, 4465, or 4425		4 ENVR 4303	3
	ENVR/GEOL/DATA/BIOL/CHEM Electives (8 Credits)		8 ENVR 3457	4
	Language, Philosophy, and Culture		3 ENVR/GEOL/DATA/BIOL/CHEM electives	4
			Foundational Component Area	3
	<b>15</b>		<b>14</b>	

Total Hours: 120

\* See [General Core Requirements \(http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/\)](http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) for approved courses.

## TRACK DEGREE PLAN: BACHELOR OF SCIENCE IN GEOLOGY AND MASTER OF SCIENCE IN EARTH AND ENVIRONMENTAL SCIENCE - GEOSCIENCE OPTION

The Fast Track program will enable outstanding senior undergraduate Geology students to satisfy degree requirements leading to a master's degree in Environmental Science while completing their undergraduate studies. This degree is designed for students who plan to work in the geoscience sectors.

### DESCRIPTION

**Unconditional admission:** Undergraduate Geology students can apply when they are within 30 hours of completing their B.S. in Geology degree from the University of Texas Arlington (UTA). They must have completed at least 30 hours of study at UTA with a total GPA of 3.3 and earned an overall GPA of 3.3 or better in all college of science courses as well as Earth and environmental science courses taken at UTA. Additionally, they must have completed 16 credit hours of specified undergraduate Fast Track screening courses at UTA that are listed below and earn a GPA of at least 3.3 in these courses. If one of these courses is transferred from another school it will not be included, and an equivalent course determined by the undergraduate advisor will be used as a Fast Track foundation course. Students must meet any other requirements imposed by the B.S. in Geology and M.S. in Earth and Environmental Science program.

Undergraduate Screening Courses Required for Admission into the Fast Track program:

1. **GEOL 2445** Mineralogy (4-0)
2. **GEOL 3454** Statistics for Earth and Environmental Scientist (4-0)
3. **Two of the following courses:**
  - **GEOL 3441** Biostratigraphy and Life Through Time (4-0)
  - **GEOL 3442** Sedimentology and Stratigraphy (4-0)
  - **GEOL 3443** Structural Geology (4-0)
  - **GEOL 3446** Petrology and Geochemistry (4-0)

Students admitted to the Fast Track BS-MS Geology program will be allowed to take three 5000-level GEOL/EVSE electives with a total of 12 credit hours in place of 3000/4000-level undergraduate ENVR/GEOL/DATA/CHEM/BIO electives. These credits can be used to meet the required 120 credit hours and the required 30 credit hours for MS degree at UTA.

**Provisional Admission:** A student may gain provisional admission if, during the semester in which application is made, he or she will complete any remaining courses needed to satisfy prerequisite requirements. Provisional admission will be changed to unconditional admission upon satisfactory



completion of remaining requirements. Students failing to meet all requirements at the end of their semester of application will be removed from the Fast Track program. Any credits earned prior to removal from the program will be applied to the undergraduate degree only. None of the other benefits of the Fast Track program will apply. Provisionally admitted students who have been removed from the program may subsequently apply to graduate programs via the normal application process, paying all fees and meeting all relevant admission criteria. Admission will not be automatic as it will be subject to the normal admission practices of the program to which application is made and the Graduate School.

**Denial:** Students who are not admissible under the conditions specified above shall be denied admission to the Fast Track program. They may apply to graduate programs via the regular application process, paying all required fees and meeting all relevant admission criteria. Admission will not be automatic as it will be subject to the normal admission practices of the program to which application is made and the Graduate School.

## COURSE REQUIREMENTS

### PRE-PROFESSIONAL COURSES

<u>General Core Requirements</u> ( <a href="http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/">http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/</a> )		42
UNIV 1131	STUDENT SUCCESS	1
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts*		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy, and Culture*		3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
or PHYS 1443	GENERAL TECHNICAL PHYSICS I	
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
or PHYS 1444	GENERAL TECHNICAL PHYSICS II	
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
Social/Behavioral Science*		3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundation Component Area*		3

### PROGRAM REQUIREMENTS

Communication Competence - pass oral presentation requirement in GEOL 3442, GEO 3444, COMS1301, or COMS1302 or equivalent course

Computer Competence - pass Computer Skills Placement test or any computer-related course:

GEOL 4330	UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	3
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### PROFESSIONAL COURSES

BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	4
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
GEOL 3454	STATISTICS FOR EARTH AND ENVIRONMENTAL SCIENTISTS	4
MINOR: 18 or more hours as required for Biology, Chemistry, Mathematics, or Physics		10

### MAJOR

GEOL 1301	EARTH SYSTEMS	3
GEOL 1302	EARTH HISTORY	3
GEOL 2445	MINERALOGY	4
GEOL 3441	BIOSTRATIGRAPHY AND LIFE THROUGH TIME	4
GEOL 3442	SEDIMENTOLOGY AND STRATIGRAPHY	4
GEOL 3443	STRUCTURAL GEOLOGY	4
GEOL 3446	PETROLOGY AND GEOCHEMISTRY	4
GEOL 3387	FIELD GEOLOGY I	3
GEOL 3388	FIELD GEOLOGY II	3
GEOL, ENVR, or DATA 3000-4000-level electives (can not be GEOL4331, 4333, 4334, and 4354)		2
General Elective(s)		4

### GRADUATE PROGRAM

## Graduate Courses

Select one of the following in engineering (or advisor approved):		3
CE 5321	ENGINEERING FOR ENVIRONMENTAL SCIENTISTS	
IE 5321	ENTERPRISE ANALYSIS AND DESIGN	
GEOL or EVSE 5000-level electives (can not be GEOL5320, GEOL 5454, 4334, and 4354)		18
Take two hours in the following seminar:		2
GEOL 4199	TECHNICAL SESSIONS	
GEOL 5395	MASTER'S PROJECT <sup>1)</sup>	3

\*See General Core Requirements for approved courses.

<sup>1)</sup>Can be replaced by GEOL 5698 Thesis or GEOL or EVSE 5000-level electives (advisor approval)

**Note: This program consists of 111 undergraduate credit hours, plus 30 graduate credit hours. A grand total of 141 credit hours.**

## TYPICAL COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the Earth and Environmental Sciences undergraduate advisor, particularly since many GEOL courses are not offered every semester. Students should also consult with the appropriate department for minor requirements; Biology minors should consult with the Earth and Environmental Sciences undergraduate advisor.

## First Year

	First Semester	Hours	Second Semester	Hours
	UNIV 1131		1 GEOL 1302	3
	GEOL 1301	3	MATH 2425	4
	MATH 1426	4	ENGL 1302	3
	ENGL 1301	3	CHEM 1442	4
	CHEM 1441	4		
	<b>15</b>		<b>14</b>	

## Second Year

	First Semester	Hours	Second Semester	Hours
	BIOL 1441		4 PHYS 1442	4
	POLS 2311	3	POLS 2312	3
	PHYS 1441	4	Creative Arts*	3
	GEOL 2445	4	Minor Course**	4
	<b>15</b>		<b>14</b>	

## Third Year

Summer Session	Hours	First Semester	Hours	Second Semester	Hours
GEOL 3387	3	GEOL 3441	4	GEOL 3442	4
GEOL 3388	3	GEOL 3443	4	GEOL 3446	4
		GEOL 4330	3	HIST 1302	3
		HIST 1301	3	GEOL 3454	4
	<b>6</b>		<b>14</b>		<b>15</b>

## Fourth Year

	First Semester	Hours	Second Semester	Hours
	Minor course**		6 Foundational Component Area*	3
	General elective(s)	4	GEOL 5000 level electives	6
	GEOL 5000 level elective	3	Language, Philosophy and Culture*	3
			Additional 4000 level Geology elective	2
	<b>13</b>		<b>14</b>	

## Fifth Year

	First Semester	Hours	Second Semester	Hours
	CE 5321 or IE 5304	3	Electives in 5000-level GEOL or EVSE courses	5
	GEOL 5199	1	GEOL 5199	1
	Electives in 5000-level GEOL or EVSE courses	8	GEOL 5395	3
	<b>12</b>		<b>9</b>	

**Total Hours: 141**

\* See [General Core Requirements \(https://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/\)](https://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) for approved courses.

\*\* Actual number of courses/hours and course sequence determined by appropriate department.

## FAST TRACK DEGREE PLAN: BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE AND MASTER OF SCIENCE IN EARTH AND ENVIRONMENTAL SCIENCE – ENVIRONMENTAL SCIENCE PROFESSIONAL Option

The Fast Track program will enable outstanding senior undergraduate Environmental Science students to satisfy degree requirements leading to a master's degree in Environmental Science while completing their undergraduate studies.

### DESCRIPTION

**Unconditional Admission:** Undergraduate Environmental Science students can apply when they are within 30 hours of completing their B.S. in Environmental Science degree from the University of Texas Arlington (UTA). They must have completed at least 30 hours of study at UTA with a total GPA of 3.3 and earned an overall GPA of 3.3 or better in all college of science courses as well as environmental science courses taken at UTA. Additionally, they must have completed 14 credit hours of specified undergraduate Fast Track screening courses at UTA that are listed below and earn a GPA of at least 3.3 in these courses. If one of these courses is transferred from another school it will not be included, and an equivalent course determined by the undergraduate advisor will be used as a Fast Track foundation course. Students must meet any other requirements imposed by the B.S. in Environmental Science and M.S. in Earth and Environmental Science program.

Undergraduate Screening Courses Required for Admission into the Fast Track program:

1. **ENVR 2414** The global Environment and Human Health (4-0)
2. **ENVR 3317** Environmental Hydrology (4-0)
3. **ENVR 3387** Environmental Science Field Methods (3-0)
4. **ENVR 3454** Statistics for Earth and Environmental Scientist (4-0)

**ENVR** students pursuing the Fast Track master's degree will be allowed to take three EVSE/PLAN/CE/IE 5000-level electives in place of advanced undergraduate ENVR/GEOL/DATA/CHEM/BIO electives.

**Provisional Admission:** A student may gain provisional admission if, during the semester in which application is made, he or she will complete any remaining courses needed to satisfy prerequisite requirements. Provisional admission will be changed to unconditional admission upon satisfactory completion of remaining requirements. Students failing to meet all requirements at the end of their semester of application will be removed from the Fast Track program. Any credits earned prior to removal from the program will be applied to the undergraduate degree only. None of the other benefits of the Fast Track program will apply. Provisionally admitted students who have been removed from the program may subsequently apply to graduate programs via the normal application process, paying all fees and meeting all relevant admission criteria. Admission will not be automatic as it will be subject to the normal admission practices of the program to which application is made and the Graduate School.

**Denial:** Students who are not admissible under the conditions specified above shall be denied admission to the Fast Track program. They may apply to graduate programs via the regular application process, paying all required fees and meeting all relevant admission criteria. Admission will not be automatic as it will be subject to the normal admission practices of the program to which application is made and the Graduate School.

### COURSE REQUIREMENTS

#### PRE-PROFESSIONAL COURSES

RECOMMENDED CORE REQUIREMENTS		42
UNIV 1131	STUDENT SUCCESS	1
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts *		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture *		3
PHYS 1443	GENERAL TECHNICAL PHYSICS I	4
or PHYS 1441	GENERAL COLLEGE PHYSICS I	
PHYS 1444	GENERAL TECHNICAL PHYSICS II	4
or PHYS 1442	GENERAL COLLEGE PHYSICS II	
MATH 1426	CALCULUS I	4
MATH 2425	CALCULUS II	4
Social/Behavioral Science *		3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3

HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundation Component Area		3
Computer Competence - pass Computer Skills Placement test or any computer-related course:		3
GEOL 4330	UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	
<b>PROFESSIONAL COURSES</b>		
ENVR 3454	STATISTICS FOR EARTH AND ENVIRONMENTAL SCIENTISTS	4
MAJOR		
ENVR 1301	INTRODUCTION TO ENVIRONMENTAL SCIENCE	3
ENVR 1330	GLOBAL WARMING	3
or GEOL 1340	WEATHER AND CLIMATE	
or GEOL 1301	EARTH SYSTEMS	
ENVR 2314	THE GLOBAL ENVIRONMENT AND HUMAN HEALTH	3
ENVR 3317	ENVIRONMENTAL HYDROLOGY	3
or ENVR 4325	TRACER HYDROLOGY	
ENVR 3387	ENVIRONMENTAL SCIENCE FIELD METHODS	3
ENVR 4303	TOPICS IN SUSTAINABILITY	3
ENVR 4308	ENVIRONMENTAL GEOCHEMISTRY	3
ENVR 4313	ENVIRONMENTAL REGULATION OF CHEMICAL HAZARDS	3
or ENVR 4312	ENVIRONMENTAL RISK BASED ACTION	
GEOL 4331	ANALYSIS OF SPATIAL DATA	3
or GEOL 4332	GLOBAL POSITIONING SYSTEM	
or GEOL 4333	REMOTE SENSING FUNDAMENTALS	
or GEOL 4334	GEOGRAPHIC DATA ANALYSIS	
GEOL 4405	METEOROLOGY AND CLIMATOLOGY	4
or GEOL 4425	PALEOCLIMATE & CLIMATE CHANGE	
or GEOL 4465	PHYSICAL OCEANOGRAPHY AND LIMNOLOGY	
BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	4
BIOL 3356	ENVIRONMENTAL SYSTEMS, BIOLOGICAL ASPECTS	3
or BIOL 3355	TOXICOLOGY	
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
ENVR/GEOL/DATA/CHEM/BIO ELECTIVES (7 CREDIT HOURS)		7
36 hours of coursework must be upperdivision (3000/4000 - level) to earn the degree		
<b>GRADUATE PROGRAM</b>		
Select one of the following Engineering Courses:		3
CE 5321	ENGINEERING FOR ENVIRONMENTAL SCIENTISTS	
IE 5304	ADVANCED ENGINEERING ECONOMY	
Select one of the following course in science:		3
EVSE 5311	ENVIRONMENTAL SYSTEMS-GEOLOGICAL ASPECTS	
EVSE 5312	ENVIRONMENTAL RISK BASED ACTION	
EVSE 5316	CONSERVATION OF NATURAL RESOURCES	
Select one of the following in City and Regional Planning:		3
PLAN 5303	PLANNING HISTORY, THEORY AND ETHICS	
PLAN 5316	LAND USE PLANNING AND THE LAW	
PLAN 5352	ENVIRONMENT ASSESSMENT POLICY & PRACTICE	
Professional Courses		
EVSE 5199	SEMINAR IN ENVIRONMENTAL & EARTH SCIENCES	1
EVSE 5115	PROFESSIONAL EXPERIENCE	1
or EVSE 6197	RESEARCH IN ENVIRONMENTAL & EARTH SCIENCES	
Electives within one of the following departments: Earth and Environmental Sciences, Civil and Environmental Engineering, or Urban and Public Affairs, Biology, or Chemistry		16

EVSE 5395	MASTER'S PROJECT <sup>1)</sup>	3
Successful completion of the Master's Comprehensive Examination in final semester.		

\*See [General Core Requirements](https://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) (https://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) for approved courses.

<sup>1)</sup>Can be replaced by EVSE 5698 Thesis or GEOL or EVSE 5000-level electives (advisor approval)

**Note: This program consists of 111 undergraduate credit hours, plus 30 graduate credit hours. A grand total of 141 credit hours. The non-fast track B.S. in Environmental Science requires 120 credit hours**

## TYPICAL COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the Earth and Environmental Sciences undergraduate advisor, particularly since many ENVR courses are not offered every semester. Students should also consult with the appropriate department for minor requirements; Biology minors should consult with the Earth and Environmental Sciences undergraduate advisor.

### First Year

	First Semester	Hours	Second Semester	Hours
	MATH 1426		4 BIOL 1442	4
	BIOL 1441		4 MATH 2425	4
	ENGL 1301		3 ENGL 1302	3
	ENVR 1301		3 ENVR 1330, GEOL 1340, or GEOL 1301	3
	UNIV 1131	1		
	<b>15</b>		<b>14</b>	

### Second Year

	First Semester	Hours	Second Semester	Hours
	HIST 1301		3 CHEM 1442 or PHYS 1444	4
	CHEM 1441		4 PHYS 1442	4
	PHYS 1441 or 1443		4 HIST 1302	3
	Social and Behavioral Sciences *		3 ENVR 2314	3
	<b>14</b>		<b>14</b>	

### Third Year

Summer Session	Hours	First Semester	Hours	Second Semester	Hours
ENVR 3387		3 ENVR 3317 or 4325		3 POLS 2312	3
		ENVR 4313		3 GEOL 4331, 4332, 4333, or 4334	3
		ENVR 3454		4 BIOL 3356 or 3355	3
		POLS 2311		3 ENVR 4308	3
		GEOL 4330		3 ENVR/GEOL/BIOL/DATA Electives	3
	<b>3</b>			<b>16</b>	<b>15</b>

### Fourth Year

	First Semester	Hours	Second Semester	Hours
	ENVR 4303		3 GEOL 4405, 4425, or 4465	4
	CE 5321 or IE 5304		3 ENVR/GEOL/BIOL/DATA Electives	4
	Language, Philosophy, and Culture *		3 EVSE 5311, 5312, or 5316	3
	PLAN 5305		3 Foundational Component Area	3
	Creative Arts *	3		
	<b>15</b>		<b>14</b>	

### Fifth Year

	First Semester	Hours	Second Semester	Hours
	EVSE or GEOL 5000-level electives		12 EVSE or GEOL 5000-level electives	4
			EVSE 5115 or 6197	1
			EVSE 5199	1
			EVSE 5395 <sup>1)</sup>	3
	<b>12</b>		<b>9</b>	

Total Hours: 141

\* See [General Core Requirements](https://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) (https://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) for approved courses.

<sup>1)</sup>Can be replaced by EVSE 5698 Thesis or GEOL or EVSE 5000-level electives (advisor approval)

## Requirements for a Bachelor of Arts in Geology - General Option

This degree is for students who want to combine Geology with other professional interests.

The University Core Curriculum consists of 42 credit hours from [University Core Curriculum \(http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/\)](http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/).

### PRE-PROFESSIONAL COURSES

#### RECOMMENDED CORE REQUIREMENTS

UNIV 1131	STUDENT SUCCESS	1
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts *		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture *		3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	3
MATH 1421	PREPARATION FOR CALCULUS	4
Social/Behavioral Science *		3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area *		3

#### PROGRAM REQUIREMENTS

Communication Competence - pass oral presentation requirement in GEOL 3441 or GEOL 3443, or complete COMS 1301, COMS 2302, or other equivalent course

Computer Competence - pass Computer Skills Placement test or any computer-related course such as:

GEOL 4330 UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS

#### PROFESSIONAL COURSES

BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	4
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
MINOR: 18 or more hours as required by the appropriate department		18
MAJOR		
GEOL 1301	EARTH SYSTEMS	3
GEOL 1302	EARTH HISTORY	3
GEOL 2445	MINERALOGY	4
GEOL 3441	BIOSTRATIGRAPHY AND LIFE THROUGH TIME	4
GEOL 3442	SEDIMENTOLOGY AND STRATIGRAPHY	4
GEOL 3443	STRUCTURAL GEOLOGY	4
GEOL 3446	PETROLOGY AND GEOCHEMISTRY	4
GEOL, ENVR, or DATA advanced (3000/4000-level) electives approved by the Earth and Environmental Sciences undergraduate advisor		11
<b>General Electives</b>		<b>3</b>
36 hours of coursework must be advanced (3000/4000-level) to earn degree.		

#### Total Hours

120

\* See [General Core Requirements \(http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/\)](http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) for approved courses.

### TYPICAL COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the Earth and Environmental Sciences undergraduate advisor, particularly since many GEOL courses are not offered every semester. Students should also consult with the appropriate department for minor requirements.

#### First Year

First Semester	Hours	Second Semester	Hours
GEOL 1301		3 GEOL 1302	3
MATH 1421		4 MATH 1308	3

ENGL 1301		3 ENGL 1302	3
CHEM 1441		4 CHEM 1442	4
UNIV 1131		1 Creative Arts	3
		<b>15</b>	<b>16</b>
<b>Second Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
minor course**		3 minor course**	3
PHYS 1441		4 POLS 2311	3
BIOL 1441		4 PHYS 1442	4
GEOL 2445		4 BIOL 1442	4
		<b>15</b>	<b>14</b>
<b>Third Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
GEOL 3443		4 GEOL 3442	4
POLS 2312		3 approved GEOL, ENVR, or DATA advanced (3000/4000- level) elective	4
HIST 1301		3 GEOL 3446	4
HIST 1302		3 HIST 1302	3
General Elective		3	
		<b>16</b>	<b>15</b>
<b>Fourth Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
GEOL 3441		4 approved GEOL 4000-level elective	1
approved GEOL, ENVR, or DATA advanced (3000/4000-level) elective		3 minor course**	6
minor course**		6 Language, Philosophy and Culture*	3
Social/Behavioral Science*		3 Foundational Component Area	3
		<b>16</b>	<b>13</b>
<b>Total Hours: 120</b>			

\* See [General Core Requirements \(http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/\)](http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) for approved courses.

\*\* Actual number of courses/hours and course sequence determined by appropriate department.

## Requirements for a Bachelor of Arts in Geology - Geographic Information Systems Option

This degree is for students who want to combine Geology with computer technology to store and analyze spatial data using GIS software.

The University Core Curriculum consists of 42 credit hours from [University Core Curriculum \(http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/\)](http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/).

### PRE-PROFESSIONAL COURSES

#### RECOMMENDED CORE REQUIREMENTS

UNIV 1131	STUDENT SUCCESS	1
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts*		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture*		3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	3
MATH 1421	PREPARATION FOR CALCULUS	4
Social/Behavioral Science*		3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3

HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area *		3

**PROGRAM REQUIREMENTS**

Communication Competence - pass oral presentation requirement in GEOL 3441 or GEOL 3443, or complete COMS 1301, COMS 2302, or other equivalent course

Computer Competence - satisfied by GEOL 4330

**PROFESSIONAL COURSES**

BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	4
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
MINOR: 18 hours as required by appropriate department		18

**MAJOR**

GEOL 1301	EARTH SYSTEMS	3
GEOL 1302	EARTH HISTORY	3
GEOL 2445	MINERALOGY	4
GEOL 3446	PETROLOGY AND GEOCHEMISTRY	4
GEOL 3441	BIOSTRATIGRAPHY AND LIFE THROUGH TIME	4
GEOL 3442	SEDIMENTOLOGY AND STRATIGRAPHY	4
GEOL 3443	STRUCTURAL GEOLOGY	4
GEOL 4330	UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	3
GEOL 4331	ANALYSIS OF SPATIAL DATA	3
GEOL 4333	REMOTE SENSING FUNDAMENTALS	3
GEOL 4334	GEOGRAPHIC DATA ANALYSIS	3

**General Elective(s)**

2

36 hours of coursework must be advanced (3000/4000-level) to earn degree.

**Total Hours**

120

\* See [General Core Requirements \(http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/\)](http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) for approved courses.

**TYPICAL COURSE SEQUENCE**

Details of a personal course sequence should be made with the guidance of the Earth and Environmental Sciences undergraduate advisor, particularly since many GEOL courses are not offered every semester. Students should also consult with the appropriate department for minor requirements.

**First Year**

First Semester	Hours	Second Semester	Hours
GEOL 1301		3 GEOL 1302	3
MATH 1324		3 MATH 1308	3
ENGL 1301		3 ENGL 1302	3
Creative Arts *		3 Language, Philosophy and Culture	3
CHEM 1441		4 CHEM 1442	4
		<b>16</b>	<b>16</b>

**Second Year**

First Semester	Hours	Second Semester	Hours
GEOL 2445		4 minor course **	3
HIST 1301		3 PHYS 1442	4
PHYS 1441		4 POLS 2311	3
BIOL 1441		4 Social/Behavioral Science *	3
		HIST 1302	3
		BIOL 1442	4
		<b>15</b>	<b>20</b>

**Third Year**

First Semester	Hours	Second Semester	Hours
GEOL 3443		4 GEOL 3442	4
GEOL 4330		3 GEOL 4331	3



minor course**		6 minor course**	3
		GEOL 3446	4
		<b>13</b>	<b>14</b>
<b>Fourth Year</b>			
<b>First Semester</b>	<b>Hours</b>	<b>Second Semester</b>	<b>Hours</b>
GEOL 3441		4 GEOL 4334	3
GEOL 4333		3 minor course**	3
minor course**		3 POLS 2312	3
		General Elective(s)	7
		<b>10</b>	<b>16</b>
<b>Total Hours: 120</b>			

\* See [General Core Requirements \(http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/\)](http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) for approved courses.

\*\* Actual number of courses/hours and course sequence determined by appropriate department.

## Requirements for a Bachelor of Arts in Geology - Composite Science Teacher Certification Option (UTeach)

This degree is for students who want teacher certification, and it is offered through the UTeach program.

The University Core Curriculum consists of 42 credit hours from [University Core Curriculum \(http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/\)](http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/).

### PRE-PROFESSIONAL COURSES

#### RECOMMENDED CORE REQUIREMENTS

UNIV 1131	STUDENT SUCCESS	1
ENGL 1301	RHETORIC AND COMPOSITION I	3
ENGL 1302	RHETORIC AND COMPOSITION II	3
Creative Arts *		3
POLS 2311	GOVERNMENT OF THE UNITED STATES	3
POLS 2312	STATE AND LOCAL GOVERNMENT	3
Language, Philosophy and Culture *		3
PHYS 1441	GENERAL COLLEGE PHYSICS I	4
PHYS 1442	GENERAL COLLEGE PHYSICS II	4
MATH 1421	PREPARATION FOR CALCULUS	4
MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	3
Social/Behavioral Science *		3
HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Foundational Component Area *		3

### PROGRAM REQUIREMENTS

Communication Competence - pass oral presentation requirement in GEOL 3441 or GEOL 3443, or complete COMS 1301, COMS 2302, or other equivalent course

Computer Competence - satisfied by EDUC 4331

### PROFESSIONAL COURSES

BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	4
BIOL 3315	GENETICS	3
BIOL 3454	GENERAL ZOOLOGY	4
ENVR 4303	TOPICS IN SUSTAINABILITY	3
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
TEACHER CERTIFICATION (UTEACH)		
SCIE 1201	STEP 1: INQUIRY APPROACHES TO TEACHING	2
SCIE 1202	STEP 2: INQUIRY-BASED LESSON DESIGN	2

SCIE 4107	CAPSTONE TEACHING EXPERIENCE SEMINAR	1
SCIE 4607	CAPSTONE TEACHING EXPERIENCE FOR STEM SECONDARY GRADES	6
EDUC 4331	KNOWING AND LEARNING IN MATH AND SCIENCE	3
EDUC 4332	CLASSROOM INTERACTIONS	3
EDUC 4333	MULTIPLE TEACHING PRACTICES IN MATH AND SCIENCE	3
PHIL 2314	PERSPECTIVES ON SCIENCE AND MATHEMATICS	3
<b>MAJOR</b>		
GEOL 1301	EARTH SYSTEMS	3
GEOL 1302	EARTH HISTORY	3
GEOL 2445	MINERALOGY	4
GEOL 3446	PETROLOGY AND GEOCHEMISTRY	4
or GEOL 3441	BIOSTRATIGRAPHY AND LIFE THROUGH TIME	
GEOL 3442	SEDIMENTOLOGY AND STRATIGRAPHY	4
GEOL 3443	STRUCTURAL GEOLOGY	4
GEOL 4343	RESEARCH METHODS - UTEACH	3
36 hours of coursework must be advanced (3000/4000-level) to earn degree.		
<b>Total Hours</b>		<b>120</b>

\* See [General Core Requirements \(http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/\)](http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) for approved courses.

## TYPICAL COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the UTeach advisor, particularly since many GEOL courses are not offered every semester.

### First Year

First Semester	Hours	Second Semester	Hours
UNIV 1131		1 GEOL 1302	3
GEOL 1301		3 MATH 1308	3
MATH 1421		4 ENGL 1302	3
SCIE 1201		2 SCIE 1202	2
CHEM 1441		4 CHEM 1442	4
		<b>14</b>	<b>15</b>

### Second Year

First Semester	Hours	Second Semester	Hours
EDUC 4331		3 Creative Arts*	3
PHYS 1441		4 EDUC 4332	3
BIOL 1441		4 PHYS 1442	4
GEOL 2445		4 BIOL 1442	4
		<b>15</b>	<b>14</b>

### Third Year

First Semester	Hours	Second Semester	Hours
GEOL 3443		4 GEOL 3442	4
BIOL 3315		3 BIOL 3454	4
PHIL 2314		3 GEOL 4343	3
HIST 1301		3 ENVR 4303	3
ENGL 1301		3 HIST 1302	3
		<b>16</b>	<b>17</b>

### Fourth Year

First Semester	Hours	Second Semester	Hours
GEOL 3441 or 3446		4 POLS 2312	3
POLS 2311		3 Language, Philosophy and Culture*	3
Social/Behavioral Science*		3 Foundational Component Area	3
EDUC 4333		3 SCIE 4107	1

SCIE 4607

6

13

16

Total Hours: 120

\* See [General Core Requirements](http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/) (<http://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/>) for approved courses.

## Requirements for a Minor in Geology

A minimum total of 18 credit hours (including a minimum of 6 hours at the 3000-4000 level) are required. Transfer students must complete a minimum of 9 hours at UTA, 6 of which must be 3000-4000 level. A 2.0 GPA is required for coursework in the minor.

**The following courses cannot be used for the minor:** GEOL 3100, GEOL 3340, GEOL 4189, GEOL 4190, GEOL 4289, GEOL 4393.

## Requirements for a Minor in Data Science (for Majors in Earth and Environmental Sciences)

Students who are pursuing a major in the Department of Earth and Environmental Sciences and a minor in Data Science must meet with a Earth and Environmental Science Advisor who approves the minor courses. The following courses normally satisfy the requirements and are recommended by the Earth and Environmental Science Department.

### REQUIRED COURSES

DATA 1301	INTRODUCTION TO DATA SCIENCE	3
DATA 3401	PYTHON FOR DATA SCIENCE 1	4
DATA 3461	MACHINE LEARNING	4
or ENVR 4458	MACHINE LEARNING FOR EARTH AND ENVIRONMENTAL SCIENTISTS	
ADVANCED ELECTIVES - choose from the following:		9
DATA 3402	PYTHON FOR DATA SCIENCE 2	
DATA 3421	DATA MINING, MANAGEMENT, AND CURATION	
DATA 3441	STATISTICAL METHODS FOR DATA SCIENCE 1	
DATA 3442	STATISTICAL METHODS FOR DATA SCIENCE 2	
DATA 4380	DATA PROBLEMS	
DATA 4381	DATA CAPSTONE PROJECT 1	
other DATA advanced elective(s) approved by the Earth and Environmental Science undergraduate advisor		

Total Hours

20

## Requirements for a Minor in Biology (for Majors in Earth and Environmental Sciences)

Students who are pursuing a major in the Department of Earth and Environmental Sciences and a minor in Biology must meet with a Biology Advisor who approves the minor courses. The following courses normally satisfy the requirements of the Biology Department and are recommended by the EES Department.

A minimum total of 18 credit hours (including a minimum of 6 hours at the 3000-4000 level) are required. Transfer students must complete a minimum of 9 hours at UTA, 6 of which must be 3000-4000 level. A 2.0 GPA is required for coursework in the minor.

### REQUIRED COURSES

BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	4
ADVANCED ELECTIVES - choose from the following:		10
BIOL 2300	BIOSTATISTICS	
BIOL 3301	CELL PHYSIOLOGY	
BIOL 3315	GENETICS	
BIOL 3318	LIMNOLOGY	
BIOL 3339	INTRODUCTION TO EVOLUTION	
BIOL 3355	TOXICOLOGY	
BIOL 3457	GENERAL ECOLOGY	
other BIOL advanced elective(s) approved by the Biology undergraduate advisor		

Total Hours

18

## Requirements for Certification in Geographic Information Systems

Certification in Geographic Information Systems is designed for students in non-Earth and Environmental Sciences majors who want to become proficient in spatial data analysis, which is used in business, liberal arts, engineering and architecture disciplines.

This is a certification program and it does not lead to a second major or minor. However, students may use these courses to count towards a Geology minor. Students who are in the Geology B.A. Geographic Information Systems Option or Geoinformatics B.S. degree plans may not also earn this certificate, as the certificate courses are required for those degrees.

Students must obtain a 3.0 cumulative GPA in the required courses in order to earn the certificate.

### REQUIRED COURSES

GEOL 4330	UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	3
GEOL 4331	ANALYSIS OF SPATIAL DATA	3
GEOL 4333	REMOTE SENSING FUNDAMENTALS	3
GEOL 4334	GEOGRAPHIC DATA ANALYSIS	3
<b>Total Hours</b>		<b>12</b>