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.
- 2. The **Environmental Science Option** emphasizes the application of earth science to environmental problems associated with the hydrosphere, atmosphere and natural hazards.
- 3. 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:

- 1. 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.
- 3. 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/archives/2022-2023/academicregulations/degreerequirements/generalcorerequirements/).

PRE-PROFESSIONAL COURSES

RECOMMENDED CORE REQUIRE	MENTS	
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
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	4
	4
PROFESSIONAL COURSES	4
	4
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
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 3387 FIELD GEOLOGY I	3
GEOL 3388 FIELD GEOLOGY II	3
GEOL 4330 UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	
GEOL or ENVR 3000-4000-level electives (can not be GEOL4331, 4333, 4334, and 4354):	11
General Elective(s)	4
36 hours of coursework must be advanced (3000/4000-level) to earn degree.	

^{*} See General Core Requirements (http://catalog.uta.edu/archives/2022-2023/academicregulations/degreerequirements/ generalcorerequirements/) for approved courses.

TYPICAL COURSE SEQUENCE

Total Hours

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.

120

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	
	15	14	
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
	15	14	
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 minor course**	3
	GEOL 4330	3 GEOL 3446	4
	HIST 1301	3 HIST 1302	3
	6	14	14

3

Fou	ırth	Yea
-----	------	-----

	First Semester	Hours	Second Semester	Hours
	Additional 4000 level Geology elective		4 Foundational Component Area*	3
	minor course**		3 Approved Geol 4000 level courses	8
	Language, Philosophy and Culture*		3	
	Social/Behavioral Science*		3	
	GEOL 3454		4	
17	,	1	1	

Total Hours: 120

ENVR 3317

GEOL 3446

- * See General Core Requirements (http://catalog.uta.edu/archives/2022-2023/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/archives/2022-2023/academicregulations/degreerequirements/generalcorerequirements/).

PRE-PROFESSIONAL COURSES

1112 11101 200101012		
RECOMMENDED CORE REQUIRE	MENTS	
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
Foundational Component Area *		3
PROGRAM REQUIREMENTS		
Communication Competence - pass course	oral presentation requirement in GEOL 3443 or complete COMS 1301, COMS 2302, or other equivalent	
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 require	d 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

ENVIRONMENTAL HYDROLOGY

PETROLOGY AND GEOCHEMISTRY

Total Hours		120
36 hours of coursework mus	t be advanced (3000/4000-level) to earn degree.	6
or ENVR 4458	MACHINE LEARNING FOR EARTH AND ENVIRONMENTAL SCIENTISTS	
or ENVR 4455	MATHEMATICAL MODELING OF ENVIRONMENTAL QUALITY SYSTEMS	
or GEOL 4465	PHYSICAL OCEANOGRAPHY AND LIMNOLOGY	
or GEOL 4420	HYDROGEOLOGY	
GEOL 4405	METEOROLOGY AND CLIMATOLOGY	4
GEOL 4000-level elective (4	4 hours):	
GEOL 4330	UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	3
ENVR 4313	ENVIRONMENTAL REGULATION OF CHEMICAL HAZARDS	3
GEOL 3388	FIELD GEOLOGY II	3
GEOL 3387	FIELD GEOLOGY I	3
GEOL 3443	STRUCTURAL GEOLOGY	4
GEOL 3442	SEDIMENTOLOGY AND STRATIGRAPHY	4

^{*} See General Core Requirements (http://catalog.uta.edu/archives/2022-2023/academicregulations/degreerequirements/ generalcorerequirements/) for approved courses.

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	
	15	14	
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
	15	14	
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
	6	14	14
Fourth Year			
	First Semester	Hours Second Semester	Hours
	ENVR 4313	3 ENVR 4199, 4190, or 4189	1
	GEOL 4405, 4420, 4465, or 4455	4 minor course**	8
	minor course**	3 Foundational Component Area*	3

3 Language, Philosophy, and Culture

15

Total Hours: 120

Social/Behavioral Science

13

^{*} See General Core Requirements (http://catalog.uta.edu/archives/2022-2023/academicregulations/degreerequirements/generalcorerequirements/) for approved courses.

^{**} Actual number of courses/hours and course sequence determined by appropriate department.

120

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/archives/2022-2023/academicregulations/degreerequirements/generalcorerequirements/).

PRE-PROFESSIONAL COURSES

Total Hours

I ILL-I ILOI EGGIONAL GGGI	(OLO	
RECOMMENDED CORE REC	QUIREMENTS	
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 Cu	ulture *	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	a [*]	3
PROGRAM REQUIREMENTS	S	
Communication Competence	- pass oral presentation requirement in GEOL 3443 or complete COMS 1301, COMS 2302, or other equivalent	
course		
Computer Competence - satis	fied 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 lev	vel 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
GEOL, ENVR, DATA, CE, EN	IGR Elective(s) as needed to total 120 hours for degree	11
36 hours of coursework must	be advanced (3000/4000-level) to earn degree.	
T 4 111		100

^{*} See General Core Requirements (http://catalog.uta.edu/archives/2022-2023/academicregulations/degreerequirements/ generalcorerequirements/) for approved courses.

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	
1	5	1	4	
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
1	3	1	5	
1 Third Year	3	1	5	
	3 First Semester	1 Hours	5 Second Semester	Hours
Third Year Summer Session Hours		Hours		Hours 4
Third Year Summer Session Hours GEOL 3387	First Semester	Hours	Second Semester	
Third Year Summer Session Hours GEOL 3387	First Semester 3 GEOL 2445	Hours	Second Semester 4 GEOL 3442	4
Third Year Summer Session Hours GEOL 3387	First Semester 3 GEOL 2445 3 GEOL 3443	Hours	Second Semester 4 GEOL 3442 4 Advisor Approved CE, DATA, or MATH elective	4
Third Year Summer Session Hours GEOL 3387 GEOL 3388	First Semester 3 GEOL 2445 3 GEOL 3443 Advisor Approved CE, DATA, or MATH Electives	Hours	Second Semester 4 GEOL 3442 4 Advisor Approved CE, DATA, or MATH elective 3 POLS 2312	4
Third Year Summer Session Hours GEOL 3387 GEOL 3388	First Semester 3 GEOL 2445 3 GEOL 3443 Advisor Approved CE, DATA, or MATH Electives POLS 2311	Hours	Second Semester 4 GEOL 3442 4 Advisor Approved CE, DATA, or MATH elective 3 POLS 2312	4 8 3
Third Year Summer Session Hours GEOL 3387 GEOL 3388	First Semester 3 GEOL 2445 3 GEOL 3443 Advisor Approved CE, DATA, or MATH Electives POLS 2311	Hours	Second Semester 4 GEOL 3442 4 Advisor Approved CE, DATA, or MATH elective 3 POLS 2312	4 8 3
Third Year Summer Session Hours GEOL 3387 GEOL 3388	First Semester 3 GEOL 2445 3 GEOL 3443 Advisor Approved CE, DATA, or MATH Electives POLS 2311 6	Hours 1 Hours	Second Semester 4 GEOL 3442 4 Advisor Approved CE, DATA, or MATH elective 3 POLS 2312 3	4 8 3
Third Year Summer Session Hours GEOL 3387 GEOL 3388	First Semester 3 GEOL 2445 3 GEOL 3443 Advisor Approved CE, DATA, or MATH Electives POLS 2311 6 First Semester	Hours 1 Hours	Second Semester 4 GEOL 3442 4 Advisor Approved CE, DATA, or MATH elective 3 POLS 2312 3 4 Second Semester	4 8 3 15 Hours
Third Year Summer Session Hours GEOL 3387 GEOL 3388	First Semester 3 GEOL 2445 3 GEOL 3443 Advisor Approved CE, DATA, or MATH Electives POLS 2311 6 First Semester GEOL 4330	Hours 1 Hours	Second Semester 4 GEOL 3442 4 Advisor Approved CE, DATA, or MATH elective 3 POLS 2312 3 4 Second Semester 3 Foundational Component Area	4 8 3 15 Hours 3 1
Third Year Summer Session Hours GEOL 3387 GEOL 3388	First Semester 3 GEOL 2445 3 GEOL 3443 Advisor Approved CE, DATA, or MATH Electives POLS 2311 6 First Semester GEOL 4330 GEOL 4352	Hours 1 Hours	Second Semester 4 GEOL 3442 4 Advisor Approved CE, DATA, or MATH elective 3 POLS 2312 3 4 Second Semester 3 Foundational Component Area 3 General Elective	4 8 3 15 Hours 3 1

Total Hours: 120

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/archives/2022-2023/academicregulations/degreerequirements/generalcorerequirements/).

PRE-PROFESSIONAL COURSES

RECOMMENDED CORE REQUIRE	MENTS	
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

^{*} See General Core Requirements (http://catalog.uta.edu/archives/2022-2023/academicregulations/degreerequirements/ generalcorerequirements/) for approved courses.

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 C	computer Skills Placement test or any computer-related course:	3
GEOL 4330	UNDERSTANDING GEOGRAPHIC INFORMATION SYSTEMS	
PROFESSIONAL COURSES		
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	
ENVR 2314	THE GLOBAL ENVIRONMENT AND HUMAN HEALTH	3
ENVR 3317	ENVIRONMENTAL HYDROLOGY	3
ENVR 3387	ENVIRONMENTAL SCIENCE FIELD METHODS	3
ENVR 3457	ENVIRONMENTAL ANALYTICAL CHEMISTRY	4
ENVR 4303	TOPICS IN SUSTAINABILITY	3
ENVR 4313	ENVIRONMENTAL REGULATION OF CHEMICAL HAZARDS	3
ENVR 4455	MATHEMATICAL MODELING OF ENVIRONMENTAL QUALITY SYSTEMS (MODELING OF ENVR SYSTEMS)	4
or ENVR 4458	MACHINE LEARNING FOR EARTH AND ENVIRONMENTAL SCIENTISTS	
GEOL 4323	ISSUES IN ENVIRONMENTAL HEALTH	3
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 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 ENVR 4308	ENVIRONMENTAL GEOCHEMISTRY	
or BIOL 3355	TOXICOLOGY	
CHEM 1441	GENERAL CHEMISTRY I	4
CHEM 1442	GENERAL CHEMISTRY II	4
ENVR/GEOL/DATA/CHEM/BIO	ELECTIVES (8 CREDIT HOURS)	8
36 hours of coursework must be	upperdivision (3000/4000 - level) to earn the degree	
Total Hours		120

See General Core Requirements (http://catalog.uta.edu/archives/2022-2023/academicregulations/degreerequirements/ generalcorerequirements/) for approved courses.

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	Yea
-------	-----

	First Semester	Hours	Second Semester	Hours
	MATH 1426	4	4 BIOL 1442	4
	BIOL 1441	4	4 MATH 2425	4
	ENGL 1301	3	3 ENGL 1302	3
	ENVR 1301	3	3 ENVR 1330	3
	UNIV 1131	•	1	
1/	5	1/	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
	1	4		14	
Third Year					
Summer Session	Hours	First Semester	Hours	Second Semester	Hours
ENVR 3387		3 ENVR 3317		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 GEOL 4323	3
		ENVR 4330		3 Creative Arts*	3
		3		16	15
Fourth Year					
		First Semester	Hours	Second Semester	Hours
		GEOL 4405 or 4465		4 ENVR 4303	3
		ENVR/GEOL/DATA/BIOL/CHEM Electives (8 Credits)		8 ENVR 4455 or 4458	4
		Language, Philosophy, and Culture		3 ENVR 3457	4
				Foundational Component Area	3
	1	5		14	

Total Hours: 120

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/archives/2022-2023/academicregulations/degreerequirements/generalcorerequirements/).

PRE-PROFESSIONAL COURSES

1 112 1 1101 2001011112 00011020		
RECOMMENDED CORE REQUIRE	MENTS	
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 other equivalent course	oral presentation requirement in GEOL 3441 or GEOL 3443, or complete COMS 1301, COMS 2302, or	
Computer Competence - pass Comp	outer Skills Placement test or any computer-related course such as:	

Computer Computer - pass Computer Skills Fracement test of 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

^{*} See General Core Requirements (http://catalog.uta.edu/archives/2022-2023/academicregulations/degreerequirements/ generalcorerequirements/) for approved courses.

Total Hours		120
36 hours of coursework must be adv	vanced (3000/4000-level) to earn degree.	
General Electives		3
GEOL, ENVR, or DATA advanced (3	3000/4000-level) electives approved by the Earth and Environmental Sciences undergraduate advisor	11
GEOL 3446	PETROLOGY AND GEOCHEMISTRY	4
GEOL 3443	STRUCTURAL GEOLOGY	4
GEOL 3442	SEDIMENTOLOGY AND STRATIGRAPHY	4
GEOL 3441	BIOSTRATIGRAPHY AND LIFE THROUGH TIME	4
GEOL 2445	MINERALOGY	4
GEOL 1302	EARTH HISTORY	3
GEOL 1301	EARTH SYSTEMS	3
MAJOR		
MINOR: 18 or more hours as require	ed by the appropriate department	18
CHEM 1442	GENERAL CHEMISTRY II	4
CHEM 1441	GENERAL CHEMISTRY I	4
BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	4

See General Core Requirements (http://catalog.uta.edu/archives/2022-2023/academicregulations/degreerequirements/generalcorerequirements/) for approved courses.

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
		15		16
Second Year				
First Semester	Hours	Second Semester	Hours	
minor course**		3 minor course**		3
PHYS 1441		4 POLS 2311		3
BIOL 1441		4 PHYS 1442		4
GEOL 2445		4 BIOL 1442		4
		15		14
Third Year				
First Semester	Hours	Second Semester	Hours	
First Semester GEOL 3443	Hours	Second Semester 4 GEOL 3442	Hours	4
	Hours	4 GEOL 3442 3 approved GEOL,ENVR, or		4
GEOL 3443	Hours	4 GEOL 3442 3 approved GEOL,ENVR, or DATA advanced (3000/400		
GEOL 3443 POLS 2312	Hours	4 GEOL 3442 3 approved GEOL,ENVR, or DATA advanced (3000/400 level) elective		4
GEOL 3443 POLS 2312 HIST 1301	Hours	4 GEOL 3442 3 approved GEOL,ENVR, or DATA advanced (3000/400 level) elective 3 GEOL 3446		4
GEOL 3443 POLS 2312 HIST 1301 HIST 1302	Hours	4 GEOL 3442 3 approved GEOL,ENVR, or DATA advanced (3000/400 level) elective 3 GEOL 3446 3 HIST 1302		4
GEOL 3443 POLS 2312 HIST 1301	Hours	4 GEOL 3442 3 approved GEOL,ENVR, or DATA advanced (3000/400 level) elective 3 GEOL 3446 3 HIST 1302		4 3
GEOL 3443 POLS 2312 HIST 1301 HIST 1302 General Elective	Hours	4 GEOL 3442 3 approved GEOL,ENVR, or DATA advanced (3000/400 level) elective 3 GEOL 3446 3 HIST 1302		4
GEOL 3443 POLS 2312 HIST 1301 HIST 1302 General Elective Fourth Year		4 GEOL 3442 3 approved GEOL,ENVR, or DATA advanced (3000/400 level) elective 3 GEOL 3446 3 HIST 1302 3	00-	4 3
GEOL 3443 POLS 2312 HIST 1301 HIST 1302 General Elective Fourth Year First Semester	Hours	4 GEOL 3442 3 approved GEOL,ENVR, or DATA advanced (3000/400 level) elective 3 GEOL 3446 3 HIST 1302 3 16 Second Semester	Hours	4 3
GEOL 3443 POLS 2312 HIST 1301 HIST 1302 General Elective Fourth Year		4 GEOL 3442 3 approved GEOL,ENVR, or DATA advanced (3000/400 level) elective 3 GEOL 3446 3 HIST 1302 3	Hours	4 3
GEOL 3443 POLS 2312 HIST 1301 HIST 1302 General Elective Fourth Year First Semester GEOL 3441		4 GEOL 3442 3 approved GEOL,ENVR, or DATA advanced (3000/400 level) elective 3 GEOL 3446 3 HIST 1302 3 16 Second Semester 4 approved GEOL 4000-level	Hours	4 3
GEOL 3443 POLS 2312 HIST 1301 HIST 1302 General Elective Fourth Year First Semester		4 GEOL 3442 3 approved GEOL,ENVR, or DATA advanced (3000/400 level) elective 3 GEOL 3446 3 HIST 1302 3 16 Second Semester 4 approved GEOL 4000-leve elective	Hours	4 3 15

Social/Behavioral Science	3 Foundational Component Area [*]	3
	16	13

Total Hours: 120

GEOL 4333

- See General Core Requirements (http://catalog.uta.edu/archives/2022-2023/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/archives/2022-2023/academicregulations/degreerequirements/generalcorerequirements/).

PRE-PROFESSIONAL COURSES

THE THOSE COUNTRY COUNTRY		
RECOMMENDED CORE REQUIRE	MENTS	
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 app	propriate 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

REMOTE SENSING FUNDAMENTALS

	120
36 hours of coursework must be advanced (3000/4000-level) to earn degree.	
General Elective(s)	2
GEOL 4334 GEOGRAPHIC DATA ANALYSIS	3

^{*} See General Core Requirements (http://catalog.uta.edu/archives/2022-2023/academicregulations/degreerequirements/ generalcorerequirements/) for approved courses.

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
		16		16
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
		15		20
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
		13		14
Fourth Year				
First Semester	Hours	Second Semester	Hours	
GEOL 3441		4 GEOL 4334		3
GEOL 4333		3 minor course**		3
minor course**		3 POLS 2312		3
		General Elective(s)		7
		10		16

Total Hours: 120

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/archives/2022-2023/academicregulations/degreerequirements/generalcorerequirements/).

PRE-PROFESSIONAL COURSES

UNIV 1131 STUDENT SUCCESS 1

^{*} See General Core Requirements (http://catalog.uta.edu/archives/2022-2023/academicregulations/degreerequirements/ generalcorerequirements/) for approved courses.

^{**} Actual number of courses/hours and course sequence determined by appropriate department.

Total Hours

MATH 1308 ELEMENTARY STATISTICAL ANALYSIS 3 Social/Ephanioral 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 TORDITION TO COMPETED STATES, 1865 TO PRESENT TORDITION TO COMPETED STATES, 1865 TO PRESENT Communication Competence - pass-orlander separation requirement in GEOL 3441 or GEOL 3443, or complete COMS 1301, COMS 2302, or other equivalent course TORDITION COMPETED STATES, 1865 TO PRESENT PROFESSIONAL COURSE TORDITION COMPETED STATES, 1865 TO PRESENT BIOL 1441 BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY 4 BIOL 1442 BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION 4 BIOL 3431 GENERAL ZOOLOGY 4 BIOL 3454 GENERAL CHEMISTRY I 4 CHEM 1441 GENERAL CHEMISTRY I 4 CHEM 1441 GENERAL CHEMISTRY II 2 SCIE 1202 STEP 2: INQUIRY APPROACHES TO TEACHING 2 SCIE 1203 STEP 2: INQUIRY ABSED LESSON DESIGN 6 <t< th=""><th></th><th></th><th></th></t<>			
Creative Arts 3 POLS 2311 GOVERNMENT OF THE UNITED STATES 3 POLS 2312 STATE AND LOCAL GOVERNMENT 3 Language, Philosophy and Culture 4 PHYS 1441 GENERAL COLLEGE PHYSICS I 4 PHYS 1442 GENERAL COLLEGE PHYSICS II 4 MATH 1421 PREPARATION FOR CALCULUS 3 MATH 1421 PREPARATION FOR CALCULUS 3 SOCIAINS 3 SOCIAINS 4 MATH 1421 PREPARATION FOR CALCULUS 3 SOCIAINS 3 SOCIAINS 3 HIST 1301 HISTORY OF THE UNITED STATES, 1865 TO PRESENT 3 FOUNDATION REQUIREMENTS 3 PROFARM REQUIREMENTS 3 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 FROFESSIONAL COURSE BIOL 1441 BIOL 1649 FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY 4 BIOL 3315 GENERAL ZOOLOGY 4 BIOL 3454 <t< td=""><td>ENGL 1301</td><td>RHETORIC AND COMPOSITION I</td><td>3</td></t<>	ENGL 1301	RHETORIC AND COMPOSITION I	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 MATH 1421 PREPARATION FOR CALCULUS 4 MATH 1308 ELEMENTARY STATISTICAL ANALYSIS 3 SOCIAL/PERHAWORD HISTORY OF THE UNITED STATES TO 186S 3 HIST 1302 HISTORY OF THE UNITED STATES, 1866 TO PRESENT 3 FOUNDATIONAL COMPONENTS 3 PROGRAM REQUIREMENTS Computer 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 3454 GENERAL ZOOLOGY 4 BIOL 3454 GENERAL ZOOLOGY 4 CHEM 1441 GENERAL CHEMISTRY II 4 CHEM 1442 GENERAL CHEMISTRY II 4 CHEM 1442 GENERAL CHEMISTRY II 4	ENGL 1302	RHETORIC AND COMPOSITION II	
POLS 2312 STATE AND LOCAL GOVERNMENT 3 Language, Philosophy and Culture 4 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 HISTORY OF THE UNITED STATES TO 1865 3 HIST 1301 HISTORY OF THE UNITED STATES, 1865 TO PRESENT 3 FOUNDATION OR COMPONENT Area PROGRAM REQUIREMENTS 3 PROGRAM REQUIREMENTS 4 Communication Competence - pass oral presentation requirement in GEOL 3441 or GEOL 3443, or complete COMS 1301, COMS 2302, or other equivalent course 4 Computer Competence - satisfied by EDUC 4331 EUROPEAS SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY 4 BIOL 1442 BIOLOGY I FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION 4 BIOL 3456 GENERAL ZOOLOGY 4 BIOL 3476 GENERAL CHEMISTRY I 4 CHEM 1441 GENERAL CHEMISTRY I 4 CHEM 1442 GENERAL CHEMISTRY I 4 CHEM 2432	Creative Arts		3
Language, Philosophy and Culture 3 PHYS 1441 GENERAL COLLEGE PHYSICS I 4 MATH 1421 PREPARATION FOR CALCULUS 4 MATH 1421 PREPARATION FOR CALCULUS 3 MATH 1308 ELEMENTARY STATISTICAL ANALYSIS 3 Social/Behavioral Science 13 HIST 1301 HISTORY OF THE UNITED STATES TO 1865 3 FILIST 1302 HISTORY OF THE UNITED STATES, 1865 TO PRESENT 3 FOUNDATION OF THE UNITED STATES, 1865 TO PRESENT 3 FORDERAN REQUIREMENTS ************************************	POLS 2311	GOVERNMENT OF THE UNITED STATES	
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/Behaviral Science INIST 1901 HISTORY OF THE UNITED STATES TO 186S 3 HIST 1302 HISTORY OF THE UNITED STATES, 1865 TO PRESENT 3 FOUNDATION REQUIREMENTS 7 Communication Competend Area 7 PROORAM REQUIREMENTS 7 Communication Competence - satisfied by EDUC 4331 FUNDAMENTAL COUNTY PROFESSIONAL COURSES BIOL 1441 BIOL 047 I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY 4 BIOL 1442 BIOL 049 I FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION 4 BIOL 1442 BIOL 049 I FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION 4 BIOL 345 GENERAL ZOOLOGY 4 ENVR 4303 TOPICS IN SUSTAINABILITY 4 4 FEMEL 4 SELECTORIAL S	POLS 2312	STATE AND LOCAL GOVERNMENT	3
PHYS 1442 GENERAL COLLEGE PHYSICS II 4 MATH 1421 PREPARATION FOR CALCULUS 4 MATH 1432 REPARATION FOR CALCULUS 4 MATH 1438 ELEMENTARY STATISTICAL ANALYSIS 3 SOCIAL/Behavioral Science HIST 1901 HISTORY OF THE UNITED STATES TO 1865 3 FIRST 1302 HISTORY OF THE UNITED STATES, 1865 TO PRESENT 3 PROGRAM REQUIREMENTS ************************************	Language, Philosophy and Culture		3
MATH 1421 PREPARATION FOR CALCULUS 4 MATH 1308 ELEMENTARY STATISTICAL ANALYSIS 3 SOCIal/Behavioral Science 3 HIST 1302 HISTORY OF THE UNITED STATES TO 1865 3 Floundational Component Area 4 Foundational Component Area 5 Foundational Component Area 5 Communication Competence - pass or all presentation requirement in GEOL 3441 or GEOL 3443, or complete COMS 1301, COMS 2302, or orbital requirement area with a requirement and activation of competence - satisfied by EDUC 4331 PROFESSIONAL COURSES BIOL 1441 BIOLOGY II FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY 4 BIOL 1442 BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION 4 BIOL 3454 GENERIC S 3 ENYR 4303 TOPICS IN SUSTAINABILITY 3 CHEM 1441 GENERAL CHEMISTRY I 4 CHEM 1442 GENERAL CHEMISTRY I 2 SCIE 1202 STEP 1: INQUIRY APPROACHES TO TEACHING 2 SCIE 1202 STEP 2: INQUIRY ABASED LESSON DESIGN 3 SCIE 4607 CLINICAL TEACHING SEMINAR 4	PHYS 1441	GENERAL COLLEGE PHYSICS I	4
MATH 1308 ELEMENTARY STATISTICAL ANALYSIS 3 Social/Behavioral Science 3 HIST 1301 HISTORY OF THE UNITED STATES TO 1866 3 HIST 1302 HISTORY OF THE UNITED STATES, 1865 TO PRESENT 3 Foundational Component Area 1 FORGRAM REQUIREMENTS Communication Competence - pass oral presentation requirement in GEOL 3441 or GEOL 3443, or complete COMS 1301, COMS 2302, or other equivalent course FORGRAM REQUIREMENTS Communication Competence - pass oral presentation requirement in GEOL 3441 or GEOL 3443, or complete COMS 1301, COMS 2302, or other equivalent course FORGRAM REQUIREMENTS FORGRAM REQUIREMENTS <tr< td=""><td>PHYS 1442</td><td>GENERAL COLLEGE PHYSICS II</td><td>4</td></tr<>	PHYS 1442	GENERAL COLLEGE PHYSICS 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 Foundational Component Area 3 PROGRAM REQUIREMENTS TO A 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 3315 GENETICS 3 BIOL 3454 GENERAL ZOOLOGY 4 ENVR 4303 TOPICS IN SUSTAINABILITY 4 CHEM 1441 GENERAL CHEMISTRY I 4 CHEM 1442 GENERAL CHEMISTRY II 4 TEACHER CERTIFICATION (UTEACH-H 5 SCIE 1201 STEP 1: INQUIRY APPROACHES TO TEACHING 2 SCIE 4107 CLINICAL TEACHING SEMINAR 4 SCIE 4107 CLINICAL TEACHING SEMINAR 4 SCIE 4607 CLINICAL TEACHING SEMINAR	MATH 1421	PREPARATION FOR CALCULUS	4
HIST 1301 HISTORY OF THE UNITED STATES TO 1865 3 HIST 1302 HISTORY OF THE UNITED STATES, 1865 TO PRESENT 3 Poundational Component Area 3 PROGRAM REQUIREMENTS Communication Competence - pass oral presentation requirement in GEOL 3441 or GEOL 3443, or complete COMS 1301, COMS 2302, or orbiter equivalent course Computer Competence - satisfied by EDUC 4331 PROFESSIONAL COURSES BIOL 1441 BIOLOGY I FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION 4 BIOL 3315 GENETICS 3 BIOL 3454 GENERAL ZOOLOGY 4 ENNY 4303 TOPICS IN SUSTAINABILITY 3 CHEM 1441 GENERAL CHEMISTRY I 4 CHEM 1442 GENERAL CHEMISTRY II 4 CHEM 1441 GENERAL CHEMISTRY II 4 CHEM 1442 GENERAL CHEMISTRY II 2 SCIE 1201 STEP 1: INQUIRY APPROACHES TO TEACHING 2 SCIE 1202 STEP 2: INQUIRY BASED LESSON DESIGN 2 SCIE 4607 CLINICAL TEACHING SEMINAR 1 SCIE 4607 CLINICAL TEACHING SEMINAR 3 <	MATH 1308	ELEMENTARY STATISTICAL ANALYSIS	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 courses Computer Competence - satisfied by EDUC 4331 FOUNDATE OF THE WAY STATES AND MOLECULAR BIOLOGY BIOL 1441 BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY 4 BIOL 3456 GENETICS 3 BIOL 3451 GENETICS 3 BIOL 3454 GENERAL ZOOLOGY 4 ENY 4303 TOPICS IN SUSTAINABILITY 3 CHEM 1441 GENERAL CHEMISTRY I 4 CHEM 1442 GENERAL CHEMISTRY I 4 CHEM 1442 GENERAL CHEMISTRY II 4 CHEM 1442 GENERAL CHEMISTRY II 2 SCIE 1201 STEP 1: INQUIRY APPROACHES TO TEACHING 2 SCIE 1202 STEP 2: INQUIRY -BASED LESSON DESIGN 2 SCIE 4107 CLINICAL TEACHING SEMINAR 1 SCIE 1203 KINOWING ALL FANCHING SEMINAR 3 SCIE 4407 KNOWING ALL FANCH	Social/Behavioral Science *		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 1442 BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION 4 BIOL 1442 BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION 4 BIOL 1442 BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION 4 BIOL 1442 BIOL 2641 8 9 BIOL 3454 GENERAL ZOOLOGY 4 4 BIOL 3454 GENERAL CHEMISTRY I 4 4 CHEM 1442 GENERAL CHEMISTRY II 4 4 CHEM 1442 GENERAL CHEMISTRY II 4 4 CHEM 1442 GENERAL CHEMISTRY II 4 <td>HIST 1301</td> <td>HISTORY OF THE UNITED STATES TO 1865</td> <td>3</td>	HIST 1301	HISTORY OF THE UNITED STATES TO 1865	3
PROGRAM REQUIREMENTS Communication Competence - pass or all presentation requirement in GEOL 3441 or GEOL 3443, or complete COMS 1301, COMS 2302, or other equivalent courses Computer Competence - satisfied by EDUC 4331 PROFESSIONAL COURSES BIOL 1441 BIOLOGY II 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 4 CHEM 1441 GENERAL CHEMISTRY II 4 CHEM 1442 GENERAL CHEMISTRY II 4 CHEM 1442 GENERAL CHEMISTRY II 4 CHEM 1442 GENERAL CHEMISTRY II 4 CHEM 1441 GENERAL CHEMISTRY II 4 CHEM 1442 GENERAL CHEMISTRY II 4 CHEM 1442 GENERAL CHEMISTRY II 4 CEIL 202 STEP 2: INQUIRY APPROACHES TO TEACHING 2 SCIE 4007 CLINICAL TEACHING SEMINAR 1 SCIE 4007 CLINICAL TEACHING SEMINAR 1	HIST 1302	HISTORY OF THE UNITED STATES, 1865 TO PRESENT	3
Communication Competence - pass oral presentation requirement in GEOL 3441, or GEOL 3443, or complete COMS 1301, COMS 2302, or other equivalent courses 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 CHEM 1442 GENERAL CHEMISTRY II 4 TEACHER CERTIFICATION (UTEACH) 2 SCIE 1201 STEP 1: INQUIRY APPROACHES TO TEACHING 2 SCIE 4107 CINICAL TEACHING SEMINAR 1 SCIE 4107 CINICAL TEACHING FOR SECONDARY GRADES 6 EDUC 4331 KNOWING AND LEARNING IN MATH AND SCIENCE 3 BDUC 4332 CLASSROOM INTERACTIONS 3 BDUC 4333 MULTIPLE TEACHING PROACTICES IN MATH AND SCIENCE 3 BDUG 4334 <td< td=""><td>Foundational Component Area *</td><td></td><td>3</td></td<>	Foundational Component Area *		3
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 ENWR 4303 TOPICS IN SUSTAINABILITY 3 CHEM 1441 GENERAL CHEMISTRY II 4 CHEM 1442 GENERAL CHEMISTRY II 4 TEACHER CERTIFICATION (UTEACHTEACHTEACHTEACHTEACHTEACHTEACHTEACH	PROGRAM REQUIREMENTS		
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 GENERAL ZOOLOGY 4 ENVR 4303 TOPICS IN SUSTAINABILITY 3 CHEM 1441 GENERAL CHEMISTRY I 4 CHEM 1442 GENERAL CHEMISTRY II 4 CHEACHER CERTIFICATION (UTACK) TESCE 1201 STEP 1: INQUIRY APPROACHES TO TEACHING 2 SCIE 1202 STEP 2: INQUIRY-BASED LESSON DESIGN 2 SCIE 1407 CLINICAL TEACHING SEMINAR 1 SCIE 4607 CLINICAL TEACHING SEMINAR 1 SCIE 4607 CLINICAL TEACHING FOR SECONDARY GRADES 6 BDUC 4331 KNOWING AND LEARNING IN MATH AND SCIENCE 3 BDUC 4332 CLASSROOM INTERACTIONS 3 EDUC 4333 MULTIPLE TEACHING PRACTICES IN MATH AND SCIENCE 3 PHIL 2314 PERSPECTIVES ON SCIENCE AND MATHEMATICS 3 GEOL 1301 EARTH SYSTEMS 3 GEOL 3445 MINERALOGY 4 <td></td> <td>ss oral presentation requirement in GEOL 3441 or GEOL 3443, or complete COMS 1301, COMS 2302, or</td> <td></td>		ss oral presentation requirement in GEOL 3441 or GEOL 3443, or complete COMS 1301, COMS 2302, or	
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) 5 SCIE 201 STEP 1: INQUIRY APPROACHES TO TEACHING 2 SCIE 1202 STEP 2: INQUIRY-BASED LESSON DESIGN 2 SCIE 4107 CLINICAL TEACHING SEMINAR 1 SCIE 4607 CLINICAL TEACHING FOR 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 PERCENTIVES ON SCIENCE AND MATHEMATICS 3 GEOL 1301 EARTH SYSTEMS 3 GEOL 1302 EARTH HISTORY 4 GEOL 3445 <	Computer Competence - satisfied	by EDUC 4331	
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) 5 SCIE 1201 STEP 1: INQUIRY APPROACHES TO TEACHING 2 SCIE 1202 STEP 2: INQUIRY-BASED LESSON DESIGN 2 SCIE 4107 CLINICAL TEACHING SEMINAR 1 SCIE 44107 CLINICAL TEACHING FOR SECONDARY GRADES 6 EDUC 4331 KNOWING AND LEARNING IN MATH AND SCIENCE 3 EDUC 4331 KNOWING AND LEARNING IN MATH AND SCIENCE 3 EDUC 4333 MULTIPLE TEACHING PRACTICES IN MATH AND SCIENCE 3 PHIL 2314 PERSPECTIVES ON SCIENCE AND MATHEMATICS 3 MAJOR GEOL 1301 EARTH SYSTEMS 3 GEOL 1301 EARTH SYSTEMS 3 GEOL 3445 MINERALOGY 4 GEOL 3446 <td< td=""><td>PROFESSIONAL COURSES</td><td></td><td></td></td<>	PROFESSIONAL COURSES		
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 CECTOR GENERAL CHEMISTRY II 4 CHEM 1442 GENERAL CHEMISTRY II 4 CEDUC 1202 STEP 1: INQUIRY APPROACHES TO TEACHING 2 SCIE 1202 STEP 2: INQUIRY-BASED LESSON DESIGN 2 SCIE 1202 STEP 2: INQUIRY-BASED LESSON DESIGN 2 SCIE 1202 STEP 2: INQUIRY-BASED LESSON DESIGN 3 SCIE 1202 STEP 2: INQUIRY-BASED LESSON DESIGN 3 BEDUC 4331 KNOWING AND LEARNING IN MATH AND SCIENCE 3	BIOL 1441	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY	4
BIOL 3454 GENERAL ZOOLOGY 4 ENVR 4303 TOPICS IN SUSTAINABILITY 3 CHEM 1441 GENERAL CHEMISTRY I 4 CHEM 1442 GENERAL CHEMISTRY II 4 CHEM 1442 GENERAL CHEMISTRY II 4 TEACHER CERTIFICATION (UTEXALTEACHING STOPE) 3 SCIE 1201 STEP 1: INQUIRY APPROACHES TO TEACHING 2 SCIE 1202 STEP 2: INQUIRY-BASED LESSON DESIGN 2 SCIE 1407 CLINICAL TEACHING SEMINAR 1 SCIE 4607 CLINICAL TEACHING FOR 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 MAJOR 3 GEOL 1301 EARTH SYSTEMS 3 GEOL 1302 EARTH HISTORY 3 GEOL 2445 MINERALOGY 4 GEOL 2446 PETROLOGY AND GEOCHEMISTRY 6 of GEOL	BIOL 1442	BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	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 CLINICAL TEACHING SEMINAR 1 SCIE 44107 CLINICAL TEACHING FOR 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 MAJOR 3 GEOL 1301 EARTH SYSTEMS 3 GEOL 1302 EARTH HISTORY 3 GEOL 2445 MINERALOGY 4 GEOL 2446 PETROLOGY AND GEOCHEMISTRY 4 or GEOL 3441 BIOSTRATIGRAPHY AND LIFE THROUGH TIME 4 GEOL 3442 SEDIMENTOLOGY AND STRATIGRAPHY 4	BIOL 3315	GENETICS	3
CHEM 1441 GENERAL CHEMISTRY II 4 CHEM 1442 GENERAL CHEMISTRY II 4 TEACHER CERTIFICATION (UTEACH)	BIOL 3454	GENERAL ZOOLOGY	4
CHEM 1442 GENERAL CHEMISTRY II 4 TEACHER CERTIFICATION (UTEACH) STEP 1: INQUIRY APPROACHES TO TEACHING 2 SCIE 1201 STEP 1: INQUIRY-BASED LESSON DESIGN 2 SCIE 1202 STEP 2: INQUIRY-BASED LESSON DESIGN 2 SCIE 4107 CLINICAL TEACHING SEMINAR 1 SCIE 4607 CLINICAL TEACHING FOR 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 MAJOR GEOL 1301 EARTH SYSTEMS 3 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 4 GEOL 3442 SEDIMENTOLOGY AND STRATIGRAPHY 4 GEOL 3443 STRUCTURAL GEOLOGY 4	ENVR 4303	TOPICS IN SUSTAINABILITY	3
TEACHER CERTIFICATION (UTEACH) SCIE 1201 STEP 1: INQUIRY APPROACHES TO TEACHING 2 SCIE 1202 STEP 2: INQUIRY-BASED LESSON DESIGN 2 SCIE 4107 CLINICAL TEACHING SEMINAR 1 SCIE 4607 CLINICAL TEACHING FOR 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 MAJOR 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 4 GEOL 3442 SEDIMENTOLOGY AND STRATIGRAPHY 4 GEOL 3443 STRUCTURAL GEOLOGY 4 GEOL 3443 RESEARCH METHODS - UTEACH 3	CHEM 1441	GENERAL CHEMISTRY I	4
SCIE 1201 STEP 1: INQUIRY APPROACHES TO TEACHING 2 SCIE 1202 STEP 2: INQUIRY-BASED LESSON DESIGN 2 SCIE 4107 CLINICAL TEACHING SEMINAR 1 SCIE 4607 CLINICAL TEACHING FOR 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 MAJOR 3 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 4 GEOL 3442 SEDIMENTOLOGY AND STRATIGRAPHY 4 GEOL 3443 STRUCTURAL GEOLOGY 4 GEOL 3443 RESEARCH METHODS - UTEACH 3	CHEM 1442	GENERAL CHEMISTRY II	4
SCIE 1202 STEP 2: INQUIRY-BASED LESSON DESIGN 2 SCIE 4107 CLINICAL TEACHING SEMINAR 1 SCIE 4607 CLINICAL TEACHING FOR 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 MAJOR 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 4 GEOL 3442 SEDIMENTOLOGY AND STRATIGRAPHY 4 GEOL 3443 STRUCTURAL GEOLOGY 4 GEOL 3443 RESEARCH METHODS - UTEACH 3	TEACHER CERTIFICATION (UTE	EACH)	
SCIE 4107 CLINICAL TEACHING SEMINAR 1 SCIE 4607 CLINICAL TEACHING FOR 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 MAJOR GEOL 1301 EARTH SYSTEMS 3 GEOL 1301 EARTH HISTORY 3 GEOL 2445 MINERALOGY 4 GEOL 3446 PETROLOGY AND GEOCHEMISTRY 4 or GEOL 3441 BIOSTRATIGRAPHY AND LIFE THROUGH TIME 4 GEOL 3442 SEDIMENTOLOGY AND STRATIGRAPHY 4 GEOL 3443 STRUCTURAL GEOLOGY 4 GEOL 4343 RESEARCH METHODS - UTEACH 3	SCIE 1201	STEP 1: INQUIRY APPROACHES TO TEACHING	2
SCIE 4607 CLINICAL TEACHING FOR 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 MAJOR 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 4 GEOL 3442 SEDIMENTOLOGY AND STRATIGRAPHY 4 GEOL 3443 STRUCTURAL GEOLOGY 4 GEOL 4343 RESEARCH METHODS - UTEACH 3	SCIE 1202	STEP 2: INQUIRY-BASED LESSON DESIGN	2
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 MAJOR 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 4 GEOL 3442 SEDIMENTOLOGY AND STRATIGRAPHY 4 GEOL 3443 STRUCTURAL GEOLOGY 4 GEOL 4343 RESEARCH METHODS - UTEACH 3	SCIE 4107	CLINICAL TEACHING SEMINAR	1
EDUC 4332 CLASSROOM INTERACTIONS 3 EDUC 4333 MULTIPLE TEACHING PRACTICES IN MATH AND SCIENCE 3 PHIL 2314 PERSPECTIVES ON SCIENCE AND MATHEMATICS 3 MAJOR 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 4 GEOL 3442 SEDIMENTOLOGY AND STRATIGRAPHY 4 GEOL 3443 STRUCTURAL GEOLOGY 4 GEOL 4343 RESEARCH METHODS - UTEACH 3	SCIE 4607	CLINICAL TEACHING FOR SECONDARY GRADES	6
EDUC 4333 MULTIPLE TEACHING PRACTICES IN MATH AND SCIENCE PHIL 2314 PERSPECTIVES ON SCIENCE AND MATHEMATICS MAJOR 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	EDUC 4331	KNOWING AND LEARNING IN MATH AND SCIENCE	3
PHIL 2314 PERSPECTIVES ON SCIENCE AND MATHEMATICS 3 MAJOR 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 6 GEOL 3442 SEDIMENTOLOGY AND STRATIGRAPHY 4 GEOL 3443 STRUCTURAL GEOLOGY 4 GEOL 4343 RESEARCH METHODS - UTEACH 3	EDUC 4332	CLASSROOM INTERACTIONS	3
MAJOR 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 4 GEOL 3442 SEDIMENTOLOGY AND STRATIGRAPHY 4 GEOL 3443 STRUCTURAL GEOLOGY 4 GEOL 4343 RESEARCH METHODS - UTEACH 3	EDUC 4333	MULTIPLE TEACHING PRACTICES IN MATH AND SCIENCE	3
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 4 GEOL 3442 SEDIMENTOLOGY AND STRATIGRAPHY 4 GEOL 3443 STRUCTURAL GEOLOGY 4 GEOL 4343 RESEARCH METHODS - UTEACH 3	PHIL 2314	PERSPECTIVES ON SCIENCE AND MATHEMATICS	3
GEOL 1302 EARTH HISTORY 3 GEOL 2445 MINERALOGY 4 GEOL 3446 PETROLOGY AND GEOCHEMISTRY 4 or GEOL 3441 BIOSTRATIGRAPHY AND LIFE THROUGH TIME 5 GEOL 3442 SEDIMENTOLOGY AND STRATIGRAPHY 4 GEOL 3443 STRUCTURAL GEOLOGY 4 GEOL 4343 RESEARCH METHODS - UTEACH 3	MAJOR		
GEOL 2445 MINERALOGY GEOL 3446 PETROLOGY AND GEOCHEMISTRY or GEOL 3441 BIOSTRATIGRAPHY AND LIFE THROUGH TIME GEOL 3442 SEDIMENTOLOGY AND STRATIGRAPHY GEOL 3443 STRUCTURAL GEOLOGY GEOL 4343 RESEARCH METHODS - UTEACH 4 4 4 5 5 6 6 7 7 8 7 8 8 8 8 8 8 8 8 8	GEOL 1301	EARTH SYSTEMS	3
GEOL 3446 PETROLOGY AND GEOCHEMISTRY or GEOL 3441 BIOSTRATIGRAPHY AND LIFE THROUGH TIME GEOL 3442 SEDIMENTOLOGY AND STRATIGRAPHY GEOL 3443 STRUCTURAL GEOLOGY GEOL 4343 RESEARCH METHODS - UTEACH 4 4 5 5 7 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7	GEOL 1302	EARTH HISTORY	3
or GEOL 3441 BIOSTRATIGRAPHY AND LIFE THROUGH TIME GEOL 3442 SEDIMENTOLOGY AND STRATIGRAPHY GEOL 3443 STRUCTURAL GEOLOGY GEOL 4343 RESEARCH METHODS - UTEACH 3	GEOL 2445	MINERALOGY	4
GEOL 3442 SEDIMENTOLOGY AND STRATIGRAPHY 4 GEOL 3443 STRUCTURAL GEOLOGY 4 GEOL 4343 RESEARCH METHODS - UTEACH 3	GEOL 3446	PETROLOGY AND GEOCHEMISTRY	4
GEOL 3443 STRUCTURAL GEOLOGY 4 GEOL 4343 RESEARCH METHODS - UTEACH 3	or GEOL 3441	BIOSTRATIGRAPHY AND LIFE THROUGH TIME	
GEOL 4343 RESEARCH METHODS - UTEACH 3	GEOL 3442	SEDIMENTOLOGY AND STRATIGRAPHY	4
	GEOL 3443	STRUCTURAL GEOLOGY	4
36 hours of coursework must be advanced (3000/4000-level) to earn degree.	GEOL 4343	RESEARCH METHODS - UTEACH	3
	36 hours of coursework must be a	dvanced (3000/4000-level) to earn degree.	

^{*} See General Core Requirements (http://catalog.uta.edu/archives/2022-2023/academicregulations/degreerequirements/ generalcorerequirements/) for approved courses.

120

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
		14		15
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
		15		14
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
		16		17
Fourth Year				
First Semester	Hours	Second Semester	Hours	
GEOL 3441 or 3446		4 POLS 2312		3
POLS 2311		3 Language, Philosophy an Culture *	d	3
Social/Behavioral Science		3 Foundational Component Area*		3
EDUC 4333		3 SCIE 4107		1
		SCIE 4607		6
		13		16

Total Hours: 120

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 fr	ANCED ELECTIVES - choose from the following:	

^{*} See General Core Requirements (http://catalog.uta.edu/archives/2022-2023/academicregulations/degreerequirements/ generalcorerequirements/) for approved courses.

1	Total Hours		20
	other DATA advanced elective(s)	approved by the Earth and Environmental Science undergraduate advisor	
	DATA 4381	DATA CAPSTONE PROJECT 1	
	DATA 4380	DATA PROBLEMS	
	DATA 3442	STATISTICAL METHODS FOR DATA SCIENCE 2	
	DATA 3441	STATISTICAL METHODS FOR DATA SCIENCE 1	
	DATA 3421	DATA MINING, MANAGEMENT, AND CURATION	
	DATA 3402	PYTHON FOR DATA SCIENCE 2	

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 f	rom 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) a	approved by the Biology undergraduate advisor	

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

Total Hours

3
3
3
3