

GEOLOGY - BA

The Bachelor of Arts in Geology provides students the skills to understand Earth systems and the interactions between human societies and Earth processes. The BA degree is designed for students who will use a foundation in geologic knowledge in careers such as environmental law, science journalism, non-profit organizations, business, K-12 science education, resource management, sustainability, environmental monitoring, conservation, public health, public policy, and public service. The B.A. in Geology also allows students to build an interdisciplinary degree combining geology with other disciplines, such as biological, anthropological and social disciplines in preparation for interdisciplinary graduate work.

Students will supplement their geology coursework with courses from a disciplinary theme that aligns with their career goals. Disciplinary themes are elective courses designed to prepare students for professional programs and employment in careers that would benefit from a solid geological and STEM foundation. Theme courses may be combined with additional electives to form a minor in other programs, however, completion of theme courses does not in itself confer a minor. With the exception of the Business minor, application to most minor programs is made through the department that houses the minor. The BA degree requires a minimum of 18 credit hours in a disciplinary theme. Themes not listed can be approved in consultation with a Department of Geology and Geophysics Faculty Program Coordinator.

Program Requirements

First Year

		Semester Credit Hours
Fall		
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
GEOL 150	Introduction to the Solid Earth	4
GEOL 180	Introduction to Geology and Geophysics	1
MATH 140	Mathematics for Business and Social Sciences	3
Semester Credit Hours		15

Spring

CHEM 120	Fundamentals of Chemistry II	4
GEOL 152	History of the Earth	4
MATH 142	Business Calculus	3
Communication (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication)		3
Semester Credit Hours		14

Second Year

Fall		
GEOL 203	Mineralogy	4
GEOL 210	Geological Communication	3
PHYS 201	College Physics	4
Language, philosophy and culture (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture) ²		3

Theme course ¹		3
Semester Credit Hours		17
Spring		
GEOL 250	Geological Field Methods	4
GEOL 304	Igneous and Metamorphic Petrology	4
PHYS 202	College Physics	4
Theme course ¹		3
Semester Credit Hours		15
Third Year		
Fall		
GEOL 306	Sedimentology and Stratigraphy	4
GEOL 330	Geologic Field Trips	1
American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history)		3
Social and behavioral science (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences) ²		3
Theme course ¹		3
Semester Credit Hours		14
Spring		
STAT 201	Elementary Statistical Inference	3
Government/Political science (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science)		3
Geology elective ³		3
Geosciences elective ⁴		3
Theme course ¹		3
Semester Credit Hours		15
Fourth Year		
Fall		
GEOL 420	Environmental Geology	3
or GEOL 450	or Geology Senior Project	
American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history)		3
Geology elective ³		3
Theme course ¹		3
General elective ⁵		3
Semester Credit Hours		15
Spring		
Government/Political science (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science)		3
Creative arts (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts) ²		3
Geology elective ³		3
Theme course ¹		3
General elective ⁵		3
Semester Credit Hours		15
Total Semester Credit Hours		120

¹ See theme descriptions and lists of approved theme courses below

² Three hours must be selected from courses that also satisfy the International and Cultural Diversity requirement and three hours must be selected from courses that also satisfy the Cultural Discourse requirement

³ Select from GEOL 207, GEOL 208, GEOL 300-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/geol/>) (except GEOL 481, GEOL 485), GEOP 300-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/geop/>) (except GEOP 485). No more than 3 hours of GEOL 491 or GEOP 491 may apply toward this requirement.

⁴ Select from: GEOG 205, GEOG 304, GEOG 309, GEOG 330, GEOG 331, GEOG 352/GEOL 352, GEOG 360, GEOG 361, GEOG 401, GEOG 430, GEOS 370, GEOS 380, GEOS 410, GEOS 430, GEOS 431, GEOS 442/GEOG 442 GEOS 444, OCNG 251, OCNG 252, OCNG 320, OCNG 330, OCNG 340, OCNG 350, OCNG 469.

⁵ General electives may not include AERS 100-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/aers/>); ENGL 103; GEOL 101-104 (<http://catalog.tamu.edu/undergraduate/course-descriptions/geol/>); KINE 198, KINE 199; MATH 102, MATH 142, MATH 150, MATH 151, MATH 168, MATH 171; MLSC 100-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/mlsc/>); NVSC 100-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/nvsc/>); SOMS 100-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/soms/>).

Approved theme courses

Theme courses can be combined with electives to form a minor in other programs. Themes not listed can be approved in consultation with a Department of Geology and Geophysics Faculty Program Coordinator.

Business and Finance Theme

This theme is available to students who have also declared a minor in Business (<http://catalog.tamu.edu/undergraduate/business/business-administration-minor/>) from the Mays Business School and prepares them for careers in non-profit organizations, resource management, sustainability, public service, and marketing.

Code	Title	Semester Credit Hours
Select 18 hours from:		18
ACCT 209	Survey of Accounting Principles	
ACCT 210	Survey of Managerial and Cost Accounting Principles	
ISTM 209	Business Information Systems Concepts	
FINC 409	Survey of Finance Principles	
MGMT 209	Principles of Business Regulations and Law	
MGMT 309	Survey of Management	
MKTG 409	Principles of Marketing	
Total Semester Credit Hours		18

Paleontology and Paleoecology Theme

This theme is designed for students interested in paleontology, who want to take advantage of the broad spectrum of evolution and ecology courses available in the College of Arts Science and of Agriculture and Life Science. It prepares students for careers in science journalism, resource management, and conservation paleobiology. Students

should take BIOL 111, BIOL 112, and BIOL 214 early because they are prerequisites for many of the upper-level courses.

Code	Title	Semester Credit Hours
Select 18 hours from:		18
BIOL 111	Introductory Biology I	
BIOL 112	Introductory Biology II	
BIOL 214	Genes, Ecology and Evolution	
BIOL 318	Chordate Anatomy	
BIOL 335	Invertebrate Zoology	
	or ECCB 205 or Diversity and Evolution of Invertebrates	
BIOL 357	Ecology	
	or ECCB 205 or Fundamentals of Ecology	
BIOL 440	Marine Biology	
ECCB 303	Fire Ecology and Biogeochemistry	
ECCB 315	Herpetology	
ECCB 320	Ecosystem Restoration and Management	
ECCB 401	General Mammalogy	
ECCB 402	General Ornithology	
RWFM 316	Range Ecology	
RWFM 404	Aquatic Ecosystems	
Total Semester Credit Hours		18

Geospatial Theme

This theme is designed for students who want to combine Geology and Geographic Information Systems. It prepares students for careers in resource management, sustainability, environmental conservation, and public service. Students completing appropriate course work in this theme may be eligible for a GIST minor (<http://catalog.tamu.edu/undergraduate/geosciences/geography/geographic-information-science-and-technology-minor/>).

Code	Title	Semester Credit Hours
Select 18 hours from:		18
GEOG 352/ GEOL 352	GNSS in the Geosciences	
GEOG 361	Remote Sensing in Geosciences	
GEOG 390	Principles of Geographic Information Systems	
GEOG 392	GIS Programming	
GEOG 461	Digital Image Processing in the Geosciences	
GEOG 475	Advanced Topics in GIS (Geographic Information Systems)	
GEOG 477	Terrain Analysis and Mapping	
GEOG 478	WebGIS	
GEOG 479	Principles of Geocomputation	
Total Semester Credit Hours		18

Geology of the Human Past Theme

This theme is designed for students interested in geology, anthropology, and human evolution. It prepares students for careers in science journalism, government agencies, state and national parks, biomedical technology and research, and forensic science. In this theme, ANTH 225 and ANTH 226 are prerequisites for some of the upper-level anthropology courses, and BIOL 111 and BIOL 112 are prerequisites for BIOL 214.

Code	Title	Semester Credit Hours
Select 18 hours from:		18
ANTH 204	The Prehistoric World	
ANTH 225	Introduction to Biological Anthropology	
ANTH 226	Introduction to Biological Anthropology Laboratory	
ANTH 312	Fossil Evidence of Human Evolution	
ANTH 401	Ice Age Humans in North America	
ANTH 405	Introduction to the Primates	
ANTH 423	Bioarchaeology	
ANTH 425	Human Osteology	
ANTH 427	Human Biological Variation	
ANTH 461	Environmental Archaeology	
BIOL 111	Introductory Biology I	
BIOL 112	Introductory Biology II	
BIOL 214	Genes, Ecology and Evolution	
Total Semester Credit Hours		18

Pre-Law Theme

This theme is designed for students interested in environmental, land use, and water law. It prepares students for law school, and for careers in science journalism, environmental conservation, and public service.

Code	Title	Semester Credit Hours
Select 18 hours from:		18
COMM 203	Public Speaking	
COMM 243	Argumentation and Debate	
COMM 325	Persuasion	
FIVS 205	Introduction to Forensic and Investigative Sciences	
HIST 359	American Environmental History	
HIST 360	History of Energy in America	
HIST 362	History of Science	
HIST 447	Law and Society in the United States through Reconstruction	
PHIL 314	Environmental Ethics	
PHIL 332	Social and Political Philosophy	
PHIL 334	Philosophy of Law	
POLS 233	Politics and Policy in the United States	
POLS 340	Introduction to Public Administration	
POLS 350	Modern Political Thought	
POLS 359	American Political Thought	
Total Semester Credit Hours		18

Life Sciences Theme

This theme is designed for students interested in geology who wish to pursue medical, physiological, and related life-science careers. The courses listed may lead to a Pre-Medicine minor (<http://catalog.tamu.edu/undergraduate/science/biology/pre-medicine-minor/>) if additional requirements are met. Students interested in a Pre-Medicine minor should fulfill their Communications elective with a second ENGL course and take 6 hours of upper-level Biology as their two general elective courses. Students in this theme should plan to take BIOL 111, BIOL 112 and BIOL 213 in this sequence, early in their degree program.

Code	Title	Semester Credit Hours
Select 18 hours from:		18
BICH 409	Principles of Biochemistry	
BIOL 111	Introductory Biology I	
BIOL 112	Introductory Biology II	
BIOL 213	Molecular Cell Biology	
BIOL 319	Integrated Human Anatomy and Physiology I	
BIOL 320	Integrated Human Anatomy and Physiology II	
CHEM 227	Organic Chemistry I & CHEM 23 and Organic Chemistry Laboratory	
CHEM 228	Organic Chemistry II & CHEM 23 and Organic Chemistry Laboratory	
STAT 312	Statistics for Biology	
Total Semester Credit Hours		18

Public Policy and Economics Theme

This theme is designed for students interested in Geology, Public Policy and Economics and prepares them for careers in science journalism, non-profit organizations, resource management, sustainability, environmental conservation, public service, and marketing. Due to prerequisites, students should plan to take ECON 202, ECON 323, and ECON 433 in this sequence.

Code	Title	Semester Credit Hours
Select 18 hours from:		18
COMM 323	Strategic Communication	
COMM 440	Political Communication	
COMM 446	Communication, Organizations and Society	
ECON 202	Principles of Economics	
ECON 203	Principles of Economics	
ECON 323	Microeconomic Theory	
ECON 433	Energy Markets and Policy	
ECON 436	Environmental Economics	
HIST 359	American Environmental History	
HIST 360	History of Energy in America	
JOUR 301/ COMM 307	Communication Law and Policy	
JOUR 450	Political Reporting	
PHIL 314	Environmental Ethics	
PHLT 302	Foundations of Public Health	

PHLT 330	The Environment and Public Health	
PHLT 313	Health Care and Public Health System	
POLS 233	Politics and Policy in the United States	
POLS 327	Congressional Politics	
POLS 340	Introduction to Public Administration	
MGMT 209	Principles of Business Regulations and Law	
Total Semester Credit Hours		18

Secondary Education Theme

This theme helps to prepare students for pre-college teaching. Most of the courses in this theme require Junior or Senior classification and must be taken in the order listed below. However, completion of these courses does not in itself confer a teacher certification. Students entering this theme wishing to earn teacher certification should consult with a teaching certification advisor.

Code	Title	Semester Credit Hours
INST 210	Understanding Special Populations	3
INST 222	Foundations of Education in a Multicultural Society	3
	or TEFB 273 or Introduction to Culture, Community, Society and Schools	
RDNG 465	Reading in the Middle and Secondary Grades	3
	or RDNG 372 or Reading and Writing across the Middle Grades Curriculum	
TEFB 322	Teaching and Schooling in Modern Society	3
TEFB 324	Teaching Skills II	3
TEFB 406	Science in the Middle and Secondary School	3
	or TEFB 407 or Mathematics in the Middle and Senior School	
Total Semester Credit Hours		18