# **B.S.** in Geology

# **Effective Fall 2013**

Students with this degree are well prepared to take advantage of career opportunities in petroleum or mineral industries, environmental geology, or paleontology resource management. Students are encouraged to choose electives emphasizing one of these three areas depending on their career interests. It also provides a solid basis for graduate study in the geosciences, or with careful planning of free electives, for admission to post-graduate professional schools of education, research, law, or medicine.

	FRESHMAN YEAR			Second Semester	
	First Semester		<b>GEOE 322</b>	Structural Geology	(2-1)3
MATH 123	Calculus I	(4-0) 4	GEOL 403	Regional Field Geology <sup>5</sup>	(0-1) 1
CHEM 112	General Chemistry	(3-0) 3	GEOL 461	Invert. Paleontology **	(2-1)3
CHEM 112L	Exper. Gen. Chemistry I	(0-1) 1	One of Geo	oE 324 Eng Geophysics	` ′
 _ENGL 101	Composition I	(3-0) 3		oE 482 Applied Geomorph**	(2-1)3
GEOL 201	Physical Geology	(3-0) 3		Geology Electives <sup>4</sup>	3
GEOL 201L	Physical Geology Lab	(0-1) 1			13
IS 110	Explorations <sup>1</sup>	2		Summer	
	•	17	GEOL 410	Field Geology	<u>(0-6) 6</u>
	Second Semester			3.	6
CHEM 114	General Chemistry II	(3-0) 3		SENIOR YEAR	
CHEM 114L	Exper. Gen. Chemistry II	(0-1) 1		First Semester	
MATH 125	Calculus II	(4-0) 4	<b>GEOL 464</b>	Senior Research I	(1-0) 1
GEOE 211	Earth Sys. Eng. Anal.	(1-1) 2		Geology Electives <sup>4</sup>	6
Gen Ed	Humanities/Social Science Elective	<sup>2</sup> 6		Free electives	3
		16	Humar	nities/Social Science elective	3
	SOPHOMORE YEAR				13
	First Semester			Second Semester	
PHYS 211	Univ. Physics I	(3-0) 3	<b>GEOL 465</b>	Senior Research II <sup>6</sup>	3
	TH 225 Calculus III <sup>3</sup> (4-0) 4	( / -		Geology Electives <sup>4</sup>	6
	TH 381 Intro to Statistics (3-0) 3	3-4		Free electives	2-3
GEOL 323	Search for Our Past	(3-0) 3			11-12
	Sophomore Electives <sup>4</sup>	3	120 semester cr	edits are required.	
Gen Ed	Humanities/Social Science Elective	2 3		ed in alternate years.	
_		15-16		ice, must be taken in the specified	l semester.
	Second Semester				
PHYS 213	Univ. Physics II	(3-0) 3	Curriculum Not		
ENGL 279	Technical Communications I	(3-0) 3	<sup>1</sup> Transfer studer	nts may substitute 2 credits of free e	electives
GEOL 212	Mineral. and Crystallog.	(2-1)3	for IS 110.		
Gen Ed	l Humanities/Social Science Elective		<sup>2</sup> Students must	complete 27 credits of the general e	education
	Sophomore Electives <sup>4</sup>	3	core in their firs	t 64 credit hours, including 6 credit	ts of
		15	science, 3 cr ma	th, 6 cr English/Technical Commu	nication, 6
	JUNIOR YEAR		cr humanities, a	nd 6 cr social science. ENGL 289	yields an
	First Semester		additional 3 gen	eral education credits, for a total of	30.
GEOL 331	Stratig. and Sedimentation	(2-1) 3	3Students should	d consult an advisor when choosing	math.
GEOL 341	Intro to Ign/Met Petrology	(2-1) 3	4 Sophomore an	d Geology electives must be selected	ed from
GEOL 416	Intro. to GIS	(2-1) 3	the approved lis	ts. At least 9 credits must be taken	from 400-
ENGL 289	Technical Communications II <sup>1</sup>	3	level courses. S	Substitutions must be approved by d	lept head.
PE	Physical Education	1	5 Students may	substitute Geol 471 Field Paleontol	ogy (0-2)
		13	for Geol 403; th	e extra credit is a geology elective.	
			<sup>6</sup> Under exception	onal circumstances, a student may p	etition the
			department head	d to substitute geology electives for	senior
			research.		

### **Electives Worksheet (see reverse for list)**

List GE Hum Electives (6 cr)	List Sophomore Electives (6 cr)	List Geology Electives (15 cr)	
( )	( )	()	
( )	( )	( )	
List GE Social Sci Electives (6 cr)	( )	( )	
( )	List Free Electives (5-6 cr)	( )	
()	( )	()	
List Hum/SS Electives (3 cr)	( )	( )	
()	( )	()	
( )	( )	( )	
()	()	()	

# **B.S.** in Geology

#### **Effective Fall 2013**

The major requires 6 credits of sophomore electives, 15 credits of geology electives and 5-6 credits of free electives. At least 9 credits of geology electives must come from courses at the 400-level. The lists below provide guidance for students wishing to choose electives focused on a specific career objective.

# **Electives by Focus**

#### **Resource Geology**

MEM 201 Mine Surveying
MEM 301/301L Computer Apps
in Mining
GEOE 324 Eng Geophysics I<sup>#</sup>
GEOE 451 Economic Geology\*\*
GEOE 461 Petroleum Drilling
and Production Engineering
GEOL 351 Earth Resources\*\*
GEOL 442 Optical Petrology
GEOL 476 Petroleum Geology

## **Environmental Geology**

GEOE 324 Eng Geophysics I\*
GEOE 466 Eng/Env Geol
GEOE 475 Ground Water\*
GEOE 482 Applied Geomorph\*
GEOL 351 Earth Resources\*\*
ATM/BIOL 406 Global Env
Change
ATM 403 Biogeochemistry

#### Geospatial

MEM 201 Mine Surveying GEOE 475 Ground Water\* GEOL 417 Geospatial Databases GEOL 419 Adv Geospatial Analysis GEOL 420 Remote Sensing

Note: Geology majors can simultaneously satisfy elective requirements for the Geology BS and a Minor in Geospatial Technology by taking GEOL 417, GEOL 419, GEOL 420, MEM 201, and MATH 381. Students considering the geospatial minor should take GEOL 416 Intro to GIS by their junior fall.

#### **Paleontology**

BIOL 121/L Anatomy BIOL 151 Gen Biology I BIOL 123 Physiology BIOL 153 Gen Biology II BIOL 311 Principles of Ecology GEOL 471 Field Paleo GEOL 372 Dinosaurs GEOL 472 Museum Curation GEOL 473 Museum Prep Exhib ATM/BIOL 406 Global Env Change ATM 403 Biogeochemistry

### **Electives by Semester**

Actual offerings may vary due to changes in scheduling and/or enrollments.

# **Sophomore Electives**

Fall electives (take one)
ATM 301 Atmospheric Sci
BIOL 121/L Anatomy
BIOL 151 Gen Biology I
BIOL 331 Microbiology
CSC 111Intro to Computer
Programming
GEOL 361 Oceanography
MEM 201 Mine Surveying
MEM 301/301L Computer Apps
in Mining
GEOL 351 Earth Resources\*\*
GEOL 361 Oceanography

Spring electives (take one)
BIOL 123 Physiology
BIOL 153 Gen Biology II
BIOL 331 Microbiology
BIOL 371 Genetics
CEE 325 Sustainable Design
CEE 326 Environmental Eng I
GEOL 372 Dinosaurs
MEM 120 Intro to Mining
MEM 204 Surface Mining
MET 220 Mineral Processing

PHYS 183 Modern Astronomy

#### **Geology Electives**

Fall electives
MEM 201 Mine Surveying
MEM 301/301L Computer Apps
in Mining
GEOE 475 Ground Water\*
GEOE 466 Eng/Env Geol
GEOL 419 Adv Geospatial
Analysis
GEOL 420 Remote Sensing

Fall-odd electives
GEOL 351 Earth Resources\*\*
GEOL 473 Museum Prep Exhib

Fall-even electives
ATM 403 Biogeochemistry

Spring electives
GEOE 324 Eng Geophysics I<sup>#</sup>
GEOE 475 Ground Water\*
GEOL 372 Dinosaurs
GEOL 417 Geospatial Data
GEOE 461 Petroleum Drilling
and Production Engineering
ATM/BIOL 406 Global Env
Change

Spring-even electives GEOL 442 Optical Petrology GEOL 472 Museum Curation

Spring-odd electives GEOE 451 Economic Geology GEOE 482 Applied Geomorph<sup>#</sup> GEOL 476 Petroleum Geology

Summer electives GEOL 471 Field Paleo

\* Calc III prerequisite

\*\* Offered alternate years

\*Students must take at least one
of these courses. If both are
taken, the second may serve as a
geology elective..