Major Map: Geological Sciences
Bachelor of Science (B.S.)
Geophysics Concentration
College of Arts and Sciences
School of Earth, Ocean and Environment
Bulletin Year: 2024-2025

This course plan is a recommended sequence for this major. Courses designated as critical (!) may have a deadline for completion and/or affect time to graduation. Please see the Program Notes section for details regarding "critical courses" for this particular Program of Study.

Critical	Course Subject and Title	Credit Hours	Min. Grade[1]	Major GPA[2]	Code	Prerequisites	Notes
Semester One (14 Credit Hours)							
!	ENGL 101 Critical Reading and Composition	3	C		CC-CMW		
	MATH 141 Calculus I[3]	4	C		CC-ARP	C or better in MATH 115 *or* Math placement test score	
	GEOL 101 Introduction to the Earth *or* GEOL 103 Environment of the Earth *or* GEOL 201 Observing the Earth *(fall only)*	4			PR		
	UNIV 101 The Student in the University *or* Carolina Core Requirement[4]	3			PR/CC		
Semester Two (18 Credit Hours)							
!	ENGL 102 Rhetoric and Composition	3	C		CC-CMW CC-INF	C or better in ENGL 101	
	MATH 142 Calculus II	4	C		CC-ARP	C or better in MATH 141	
	CHEM 111 & 111L – General Chemistry I	4			CC-SCI	C or better in MATH 115 *or* Math placement test score	
	GEOL 305 Earth Systems through Time *(spring only)*	4	C		MR		
	Foreign language[5] *or* other Carolina Core Requirement[4]	3			CC-GFL		
Semester Three (17 Credit Hours)							
	GEOL 302 Rocks and Minerals *(fall only)*	4	C		MR	GEOL 101, 103, *or* 201 *(CHEM 111 recommended)*	
	MATH 241 Vector Calculus	3	C		MR	C or better in MATH 142	
	PHYS 201 & 201L – General Physics I *or* PHYS 211 & 211L – Essentials of Physics I	4			CC-SCI	C or better in MATH 111/111i/112/115/116/122/141 or higher *(PHYS 201)*; MATH 141 *(PHYS 211)*	
	Carolina Core Requirement[4]	3			CC		
	Foreign language[5] *or* other Carolina Core Requirement[4]	3			CC-GFL		
Semester Four (14 Credit Hours)							
	GEOL 355 Struct. Geol. & Tectonics *(spring only)*	4	C		MR	GEOL 302 & PHYS 201 *or* 211	
	MATH 242 Elementary Differential Equations	3	C		MR	C or better in MATH 142	
	PHYS 202 & 202L – General Physics II *or* PHYS 212 & 212L – Essentials of Physics II *or* CHEM 112 & 112L – General Chemistry II *or* BIOL 101 & 101L – Biological Principles I	4			PR	See Bulletin listing.	
	Foreign language[5] *or* Carolina Core Requirement[4]	3			CR/CC		
Semester Five (14-15 Credit Hours)							
	GEOL 325 Stratigraphy & Sed. Basins *(fall only)*	4	C		MR	D or better in GEOL 302	
	GEOL 310 Surface & Subsurface Hydrology *or* GEOL 315 Surface & Near Surface Processes *or* GEOL 335 Processes of Global Envr. Change *or* GEOL 371 A view of the River *or* GEOL 570 Environmental Hydrogeology	3-4			MR	See Bulletin listing.	
	PHYS 202 & 202L – General Physics II *or* PHYS 212 & 212L – Essentials of Physics II *or* CHEM 112 & 112L – General Chemistry II *or* BIOL 102 & 102L – Biological Principles I	4			PR	See Bulletin listing.	
	History[6]	3			CR		
Semester Six (16-17 Credit Hours)							
	GEOL 345 Igneous & Metamorphic Proc. *(spring only)*	4			MR	GEOL 302 & MATH 122 *or* 141	
	GEOL 501 Principles of Geomorphology *or* GEOL 502 Principles of Coastal Geomorphology *or* GEOL 520 Isotope Geology and Geomorphology *or* GEOL 531 Plate Tectonics *or* GEOL 546 Marine Geophysics *or* GEOL 548 Environmental Geophysics *or* GEOL 575 Numerical Modeling for Earth Science Applications	3-4			MR	See Bulletin listing.	
	STAT 515 Statistical Methods I	3			CR	MATH 141 *or* 115 & a statistics class	
	Humanities or Fine Arts	3			CR		
	Carolina Core Requirement[4]	3			CC		
Summer (4-6 Credit Hours)							
	GEOL 500 Field Geology[7] *(summer only)*	4-6	C		MR CC-INT	GEOL 325 & 355	

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Semester Seven (12 Credit Hours)							
	CSCE 106 Scientific Applications Programming	3			CR	C or better in MATH 122 *or* 141	
	Social Science	3			CR		
	Carolina Core Requirement[4] *or* Approved Elective[8]	3			CC/PR		
	Carolina Core Requirement[4] *or* Approved Elective[8]	3			CC/PR		
Semester Eight (12 Credit Hours)							
	GEOL 365 Data Science in Earth, Ocean & Envr. Sci. *(cross-listed: ENVR 365, MSCI 365) (fall only)*	3	C		MR	C or better in STAT 515, CSCE 106 or higher, & in MATH 142 or higher	
	Approved Elective[8]	3			PR		
	Approved Elective[8]	3			PR		
	Approved Elective[8]	3			PR		

Graduation Requirements Summary

Minimum Total Hours	Minimum Major Requirements Hours	College & Program Requirements Hours	Carolina Core Hours	Minimum Institutional GPA
120	39	36-48	34-46	2.000

1. Regardless of individual course grades, students must maintain a minimum 2.000 cumulative GPA.
2. Some colleges require a minimum GPA for major courses. Courses indicated in this column are included in the major GPA for this program of study.
3. Students who place into MATH 111 (through the algebra placement test) or 115 (through the calculus placement test) will be required to complete it successfully before taking MATH 122 or 141. MATH 111/115 may be used as an approved elective. Students who start with MATH 111/115 should use the following sequence for the first three semesters:

Semester One	Semester Two	Semester Three
ENGL 101	ENGL 102	GEOL 325
GEOL 101, 103 *or* 201	MATH 122 *or* 141	GEOL 345
MATH 111 *or* 115	CHEM 111 & 111L	MATH 170 *or* 142
UNIV 101 *or* Carolina Core Requirement	GEOL 302	PHYS 201 & 201L *or* 211 & 211L
Foreign language *or* other Carolina Core Req.	Foreign Language *or* other Carolina Core Req.	Foreign language *or* Carolina Core Req.

4. The Carolina Core provides the common core of knowledge, skill and academic experience for all Carolina undergraduate students.
5. Students in the College of Arts and Sciences are required to demonstrate proficiency in one foreign language equivalent to the 122 course through course credit or the corresponding foreign language placement score.
6. The College of Arts and Sciences requires one U.S. History and one non-U.S. History course, both of which must be chosen from the approved Carolina Core GHS courses. Whichever is not fulfilled through the Carolina Core GHS requirement must be fulfilled through this college requirement.
7. GEOL 500 is a summer course, which takes place in the American West. Students must indicate to the SEOE undergraduate office their plans to attend field camp in January, which is prior to registering GEOL 500.
8. No courses of a remedial, developmental, skill-acquiring, or vocational nature may apply as credit toward degrees in the College of Arts and Sciences. The College of Arts and Sciences allows the use of the Pass-Fail option on elective courses. Further clarification on inapplicable courses can be obtained from the College of Arts and Sciences.

Program Notes:

- Courses identified as “critical” must be completed in the student’s first 60 semester hours of work in order for these courses to be credited toward graduation.
- All undergraduate students must take a 3-credit course or its equivalent with a passing grade that covers the founding documents. This course may fulfill any requirement in the program of study. Courses that meet this requirement are listed in the academic bulletin.
- A Degree with Distinction is available to students majoring in Geological Sciences who wish to participate in significant research activities in their major field under the supervision of a faculty mentor. Requirements include: 1) a minimum GPA of 3.5 in the major and 3.3 overall; 2) written sponsorship agreement from the faculty mentor on file in the SEOE Undergraduate Student Services office; 3) a public presentation of the Senior Thesis research accompanied by a written document approved by the faculty mentor and a second reader that follows the guidelines of the School of the Earth, Ocean and Environment Geological Sciences degree; and 4) three courses in addition to the general major requirements, including: GEOL 498 *or* GEOL 499, GEOL 699, and a minimum of one GEOL 500-level course appropriate to the research.
- The last 30 credit hours toward your degree must be earned in residence at the University of South Carolina-Columbia. However, please note that GEOL 500, while considered “in residence,” occurs in Colorado.

University Requirements: Bachelor’s degree-seeking students must meet Carolina Core (general education) requirements. For more information regarding these requirements, please visit the Carolina Core page on the University website.

Codes:			
CC	Carolina Core	**CC-INF**	Carolina Core – Information Literacy
CC-AIU	Carolina Core-Aesthetic and Interpretive Understanding	**CC-INT**	Carolina Core – Integrative Course
CC-ARP	Carolina Core-Analytical Reasoning and Problem-Solving	**CC-SCI**	Carolina Core – Scientific Literacy
CC-CMS	Carolina Core-Effective, Engaged, and Persuasive Communication: Spoken Component	**CC-VSR**	Carolina Core – Values, Ethics, and Social Responsibility
CC-CMW	Effective, Engaged, and Persuasive Communication: Written Component	**CR**	College Requirement
CC-GFL	Carolina Core-Global Citizenship and Multicultural Understanding: Foreign Language	**MR**	Major Requirement
CC-GHS	Carolina Core – Historical Thinking	**PR**	Program Requirement
CC-GSS	Carolina Core – Social Sciences		

Disclaimer: Major maps are only a suggested or recommended sequence of courses required in a program of study. Please contact your academic advisor for assistance in the application of specific coursework to a program of study and course selection and planning for upcoming semesters.