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College of Science
Department of Geosciences
Bachelor of Science in Geosciences (BS)
Geology (GEOL) Option
For students entering under UG Catalog 2021-2022

I. PATHWAYS TO GENERAL EDUCATION REQUIREMENTS (45 credits*)		
Pathways requirements and approved courses are available online: http://www.cle.prov.vt.edu/guides/index.html		
Concept 1: Discourse (9 credits)		
(Foundation: 6 credits)	ENGL 1105 (3)	ENGL 1106 (3)
(Advanced: 3 credits)	Completed by major/option requirements	
Concept 2: Critical Thinking in the Humanities (6 credits) (Select from approved Pathways courses)	_____(3)	_____(3)
Concept 3: Reasoning in the Social Sciences (6 credits) (Select from approved Pathways courses)	_____(3)	_____(3)
Concept 4: Reasoning in the Natural Sciences (6-8 credits)	Completed by major/option requirements	
Concept 5: Quantitative and Computational Thinking (9-11 credits)		
(Foundation: 6 credits)	Completed by major/option requirements	
(Advanced: 3 credits)	Completed by major/option requirements	
Concept 6: Critique and Practice in Design and the Arts (6 credits) (Select from approved Pathways courses)	____(3 Arts)	___(3 Design)
Concept 7: Critical Analysis of Identity & Equity in the US (3 credits) (Select from approved Pathways courses, can double count with another concept)	_____(3)	

** If requirements completed as outlined,* ***18 credit hours of Pathways will be satisfied*** *by major/option requirements*

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II. GEOS Degree Core (19 credits)		Sem†	
GEOS 2024 Earth's Dynamic Systems	_____(8)	F	
GEOS 2444 Geoscience Field Observations. *Pre: (1004, 1104) or 2024 or 2104))*	_____(2)	S	
GEOS 3204 Sedimentology Stratigraphy. *Pre: (1004 or 2024 or 2104)*	_____(3)	F	
GEOS 3404 Elements of Structural Geology. *Pre: (1004 or 2024 or 2104)*	_____(3)	F	
GEOS 3504 Mineralogy. *Pre: CHEM 1035*	_____(3)	F	
III. GEOS Major Requirements (19 credits)*		Sem†	Pathways:
GEOS 2004 Geoscience Fundamentals	_____(3)	S	
GEOS 4024* Senior Seminar. *Pre: (2004, 2024, 2444, 3204, 3404, 3504)*	_____(3)	S	1 advanced
GEOG 2084 Principles of Geographic Information Systems	_____(3)		
CHEM 1035* General Chemistry *Co: (MATH 1025 or MATH 1225)*	_____(3)		4
CHEM 1045* General Chemistry Laboratory *Co: (1035)*	_____(1)		4
STAT 3005* Statistical Methods. *Pre: (MATH 1025 or MATH 1225)*	_____(3)		5 advanced
OR STAT 3615* Biological Statistics. *Pre: (MATH 1205 or MATH 1525 or MATH 1225 or MATH 1025 or MATH 1524 or ISC 1105)*			
Choose 1 course from:			
GEOS 3024 Computational Methods in the Geosciences *Pre: (1004 or 2024 or 2104), (MATH 1225 or MATH 1025)*	_____(3)		
CS 1044 Intro to Programming in C			
CS 1064 Intro to Programming in Python			

** Credits may double-count for Major Requirements and Pathways (Section I)*

IV. GEOL Option Requirements (36-38 credits)*		Sem†	Pathways:
Math and Physics: Choose one sequence from below			
Sequence 1# — MATH 1025* (3)	_____(3 or 4)		5 foundation
Sequence 1# — MATH 1026* (3)	_____(3 or 4)		5 foundation
Sequence 1# — PHYS 2205*, 2215* (4)	_____(4)		4
Sequence 1# — PHYS 2206*, 2216*(4)	_____(4)		4
OR			
Sequence 2# (*preferred*) — MATH 1225* (4)	_____(3 or 4)		5 foundation
Sequence 2# (*preferred*) — MATH 1226*(4)	_____(3 or 4)		5 foundation
Sequence 2# (*preferred*) — PHYS 2305* (4)	_____(4)		4
Sequence 2# (*preferred*) — PHYS 2306* (4)	_____(4)		4
GEOS 3704 Igneous & Metamorphic Rocks. *Pre: 2024 or (1004, 1104)*	_____(3)	S	
GEOS 3104 Elementary Geophysics (3) *Pre: (1004 or 2024 or 2104), (MATH 1026 or MATH 1226), (PHYS 2205 or 2305)*	_____(3)	S	
GEOS 4964 Field Study (approved field camp)	_____(6)		
GEOS 4924 Tectonics. *Pre: (MATH 1025 or MATH 1225), (PHYS 2205 or PHYS 2305)*	_____(4)	S	
Choose 2 courses from:			
GEOS 3304 (CSES 3304) (GEOG 3304) Geomorphology (3) *Pre: (GEOG 1104 or GEOS 1004 or GEOS 2104 or GEOS 2024)*		S	
GEOS 3034 Oceanography		S	
GEOS 3604 Paleontology. *Pre: (1004, 1014) or 2024*	_____(3)	S	
GEOS 4804 Groundwater Hydrology. *Pre: (MATH 1226 or MATH 2024), (PHYS 2205 or PHYS 2305)*	_____(3)	F, S	
GEOS 4824 Engineering Geology. *Pre: (1004 or 2024 or 2104), (PHYS 2205 or PHYS 2305), (CHEM 1015 or CHEM 1035), (MATH 1025 or MATH 1225)*		S	

** Credits may double-count for Option Requirements and Pathways (Section I)*

V. GEOL Option Electives (9 credits)		
GEOS 3XXX-4XXX - Geosciences Elective #	_____(3)	_____(3)
(maximum of 3 credits of GEOS 4994 can be applied)	_____(3)	
VI. FREE ELECTIVES	_____( )	_____( )
Complete remaining credit hours needed to satisfy degree 120 credit hour requirement	_____( )	_____( )

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NOTES:

† Semester of course offering only noted for GEOS courses. Semester offered is subject to change. Please consult the timetable or your advisor for current information.

Prerequisites

See University Course Catalog for prerequisites

Except when noted with a #, all prerequisites are listed on the checksheet. There are no hidden prerequisites, although some of the courses listed are prerequisites for other courses. Even when listed, prerequisites are subject to change. Please consult University Course Catalog for current information.

Acceptable substitutions

GEOS 1004, 1104, 1014 for GEOS 2024
GEOS 2104, 1014 for GEOS 2024
CHEM 1055 or CHEM 1055H for CHEM 1035
CHEM 1065 for CHEM 1045
ENGL 1204H for ENGL 1106
COMM 1015 for ENGL 1105 and COMM 1016 for ENGL 1106
CS 1344 for CS 1044

Foreign language requirement

Students who did not successfully complete at least two years of a single foreign, classical, or sign language during high school must successfully complete six semester hours of a single foreign, classical, or sign language at the college level. Courses taken to meet this requirement do not count toward the hours required for graduation. Please consult the Undergraduate Catalog for details.

Satisfactory progress toward degree (Policy 91)

1. By 60 hours attempted at Virginia Tech, students must have completed the following courses:
   GEOS 2004, 2024 (or 1004, 1104, 1014 or 2104, 1014), 2444, 3504
   MATH 1025 or 1225
   CHEM 1035, 1045
   PHYS 2205, 2215 or 2305
2. Students must achieve an overall GPA of 2.0 and an in-major GPA of 2.5 upon attempting 15 GEOS credit hours (including transfer credit, courses completed with a grade of "W", advanced placement or IB credit)

Graduation requirements

Graduation requires completion of a minimum of 120 credit hours with a GPA of 2.0 or greater for all hours attempted. In addition, students must have an in-major GPA of 2.5 or greater. The in-major GPA is calculated from all GEOS courses.