

Geological Engineering Course Checklist

Name: _____
Major Declared in (year): _____

FRESHMAN YEAR

<u>Passed ()</u>	<u>Credit</u>	<u>Grade</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

First Semester

- CHEM 112 General Chem. I
- **MATH 123 Calculus I
- ENGL 101 Composition I
- GEOE 110 Intro. to Geol. Engineering
- #Gen. Ed. Goal 3 Elective _____
- #Gen. Ed. Goal 4 Elective _____

Second Semester

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

- CHEM 114 General Chem. II
- CHEM 112L Gen. Chem. I Lab
- **MATH 125 Calculus II
- PHYS 211 University Physics I
- GEOE 221 Geology for Engineers
- CEE 117 Computer Aided Design

SOPHOMORE YEAR

<u>Passed ()</u>	<u>Credit</u>	<u>Grade</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

First Semester

- **EM 214 Eng. Mechanics (Statics)
- MATH 225 Calculus III
- PHYS 213 University Physics II
- GEOE 201L Surveying for Min. & Geol. Eng.
- #Gen. Ed. Goal 3 Elective _____

Second Semester

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

- ENGL 279 Tech. Comm. I
- EM 321 Mechanics of Materials I
- GEOE 212 Mineralogy and Crystallography
- MATH 321 Differential Equations
- #Gen. Ed. Goal 4 Elective _____

JUNIOR YEAR

<u>Passed ()</u>	<u>Credit</u>	<u>Grade</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
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_____	_____	_____

First Semester

GEOL 331 Stratigraphy and Sedimentation
GEOL 341 IgMet Petrology
CEE 346 Geotechnical Engineering I
MET 320 Met. Thermodynamics
ENGL 289 Tech. Comm. II

Second Semester

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_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

GEOL 322 Structural Geology
*GEOE 324 Engineering Geophysics I
EM 331 Fluid Mechanics
GEOL 416 Intro. to GIS
MEM 302 Mineral Economics and Finance

SENIOR YEAR

<u>Passed ()</u>	<u>Credit</u>	<u>Grade</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

First Semester

*GEOE 466 Eng. and Environ. Geology
*GEOE 475 Ground Water
Approved Elective _____
*GEOE 464 Geol. Eng. Design Project I
Professional Elective _____

Second Semester

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

MEM 304 Rock Mechanics I
Professional Elective _____
*GEOE 461 Petrol. Drilling & Prod. Eng.
*GEOE 465 Geol. Eng. Design Project II
#Upper-Level Hum./SS. Elective _____

SUMMER

_____	_____	_____
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*GEOE 410 Engineering Field Geology

* A grade of "C" or better is required in these courses for graduation with a Geological Engineering B.S.

** A grade of C or better is required in this prerequisite course to progress.

Humanities and Social Sciences have specific requirements, see catalog for details.

GEOE Elective Guidelines

(Version 2: 4/4/2019)

Approved Electives (3 credits required):

The purpose of the approved elective is to allow a student to gain knowledge in their chosen area of expertise through a course that may or may not have significant engineering content. Commonly, students will enroll in a GEOE or GEOL course, co-op credits, or other advisor-approved course (must be 300 level or above). All of the courses listed in the “Professional Elective” list below will also satisfy the approved elective requirement, but courses cannot be double-counted.

Professional Electives (6 credits required):

Professional elective courses must contain significant engineering content. The list below includes courses that satisfy the GEOE professional elective requirement. Students may take a course that is not on the list if it is approved by your advisor (including 600-level graduate courses).

Prefix	Number	Course Title	Credits
GEOE	412/512	Science and Engineering Field Applications: Petroleum Field Camp	(0-3) 3
GEOE	412/512	Science and Engineering Field Applications: Environmental Engineering Field Camp	(0-3) 3
GEOE	462/562 (L)	Well Log Analysis/Lab	(2-1) 3
GEOE	467/567	Introduction to Geomechanics	(3-0) 3
GEOE	482/582 (L)	Applied Geomorphology/Lab	(2-1) 3
CBE	445/545	Oxidation and Corrosion of Metals	(3-0) 3
CBE	485/585	Renewable and Sustainable Energy	(3-0) 3
CBE	485L/585L	Renewable and Sustainable Energy Lab	(0-1) 1
CEE	325	Introduction to Sustainable Design	(3-0) 3
CEE	326	Environmental Engineering I	(3-0) 3
CEE	327 (L)	Environmental Engineering II/Lab *	(2-1) 3
CEE	337	Engineering Hydrology	(3-0) 3
CEE	347	Geotechnical Engineering II	(3-0) 3
CEE	425/525	Sustainable Engineering	(3-0) 3
CEE	426/526	Environmental Engineering Unit Operations and Processes*	(3-0) 3
CEE	427/527	Environmental Engineering Biological Process Design*	(3-0) 3
CEE	428/528	Oil and Gas Development and the Environment	(3-0) 3
CEE	437/537 (L)	Watershed and Floodplain Modeling/Lab *	(2-1) 3
CEE	447/547	Foundation Engineering	(3-0) 3
CEE	448/548	Applied Geotechnical Engineering	(3-0) 3
CEE	463	Concepts of Professional Practice	(2-0) 2
ENGM	435/535	Optimization Techniques	(3-0) 3
IENG	331	Safety Engineering	(3-0) 3
IENG	352	Creativity and Innovation	(1-0) 1
IENG	431/531	Industrial Hygiene	(3-0) 3
IENG	451 (L)	Operational Strategies/Lab	(2-1) 3
MEM	301 (L)	Computer Applications in Mining/Lab	(1-1) 2
MEM	303	Underground Mining Methods and Equipment	(3-0) 3
MEM	305	Introduction to Explosives Engineering	(3-0) 3
MEM	307	Mineral Exploration and Geostatistics	(3-0) 3
MEM	405	Mine Permitting and Reclamation*	(3-0) 3
MEM	410/510	Advanced Mineral Economics for Managers	(3-0) 3
MEM	420/520	Advanced Tunneling and Underground Excavation ^ψ	(3-0) 3
MEM	425/525	Advanced Rock Mechanics ^ψ	(3-0) 3
MEM	430/530	Resource Industry Mergers and Acquisition	(3-0) 3
MEM	433/533	Advanced Mine Planning	(2-1) 3
MEM	435/535	Resource Industry Finance and Accounting	(3-0) 3
MEM	445/545	Advanced Geostatistics and Grade Estimations *	(3-0) 3
MEM	450/550	Rock Slope Engineering ^ψ	(3-0) 3
MEM	455/555	Rock Slope Engineering II ^{*ψ}	(3-0) 3
MEM	480/580	Advanced Explosives and Blasting *	(3-0) 3
MEM	490/590	Geometallurgy	(3-0) 3
MET	310	Aqueous Extraction, Concentration, and Recycling	(3-0) 3

*denotes courses whose prerequisite is also on this list and would be taken in succession.

^ψdenotes courses that have MEM 304 – Rock Mechanics as a prerequisite (typically taken during the spring semester of senior year).