

GEOL 2611 - Geology for Engineers

Fall 2026 Syllabus, Section 01, CRN 42036,

Credit hours: 3

Instructor

Patrick Pruent

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Public Instructor Information

Instructor Title: Professional Geologist

Instructor Professional Qualifications:

MS, Environmental Science & Management, Duquesne University (December 2000)

BA, Geology, Slippery Rock University (May 1973)

PG, Licensed Professional Geologist (January 1994)

Instructor Office Location: Moser Hall 2200

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Course Description

2611. Geology for Engineers. Study of geologic principles, processes, and materials; focus on recognition of geologic factors as they apply to engineering operations and projects. Laboratory work includes examination of minerals, rocks, maps, and case histories. Two hours lecture, two hours laboratory per week. 3 s.h.

Course Readings

Group	Title	Author	ISBN
Optional	Geology Applied to Engineering (2nd edition)	Terry R. West and Abdual Shakoor	

The course readings are subject to change in the event of extenuating circumstances, research developments, current events, and/or to ensure better learning.

Schedule of Topics and Assignments

Day	Date	Reading(s)	Proposed Topic	Due/To Prepare for Class
Thu	8/27		Application of Geology to Engineering & Environmental Science	Review posting on Blackboard prior to class
Thu	9/3	Chapter 1	Origin & Development of the Earth, Plate Tectonics and Topographic Maps	Review PowerPoint Presentation on Blackboard. Lab on Topographic maps uses and advantages.
Thu	9/10	Chapter 2	Minerals & Mineral Properties	Review Minerals & Mineral Properties. Lab identifying minerals.
Thu	9/17	Chapter 3/6	Igneous & Metamorphic Rocks	Review PowerPoint presentation. Earthquakes and Volcanic activity will be discussed during lab.
Thu	9/24	Chapter 5	Sedimentary Rocks & Classifications: Drilling Rigs, core Sampling and Logging.	Lab- Logging an actual core sample and various drillin rigs used for sampling.
Thu	10/1	Chapter 4	Rock weathering & Soils Classification.	Review Blackboard posting. Lab concerning soils compaction.
Thu	10/8	Chapter 8	Engineering Properties of Rocks; Engineering Geology.	Review PowerPoint presentation on Blackboard. Lab on rock properties.
Thu	10/15	Exam #1		



Thu	10/22	Chapter 10	Structural Geology, Stratigraphy	Lab on geologic structures: faults, joints, folding etc.
Thu	10/29	Chapter 12	River Systems	Lab on flow calculations, erosion & deposition in stream environments.
Thu	11/5	Chapter 13	Groundwater, Porosity-Permeability, Remediation Technologies.	Blackboard postings. Lab-calculate groundwater flow direction. Remediation Technologies of pollutants. Installation of Monitoring wells.
Thu	11/12	Chapter 14	Glaciers, Physiographic Provinces	Lab on glacial features & Different Geology of Physiographic Regions
Thu	11/19	Chapter 15	Slope Stability, Ground Subsidence & Soils Investigations.	Lab- Slope Stability
Thu	11/26	Thanksgiving	No Class	
Thu	12/3	Chapter 16/19	Coastal & Arid Environments. Subsurface Investigations & Report Preparation.	Lab- Conducting Subsurface Investigations.
Thu	12/10	Exam #2 (Final) Individual Project Submission		

The course schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better learning.