JOHN A. REIF, JR. DEPARTMENT OF
CIVIL AND ENVIRONMENTAL ENGINEERING
NJIT New Jersey Institute of Technology

CEE 342– Course Section 106: Geology

(3 credits)

Lectures Day(s) 6:00pm – 8:50pm
Colton Hall; COLT 416

Instructor Instructor: John Schuring, P.E. and **Alan Slaughter, P.E.**
Office Hours: 4:15 PM – 5:30 PM, in classroom
Instructor E-Mail: georgian1899@gmail.com
Instructor Phone Number: 973-567-2726

Required Textbook

Dynamic Earth, An Introduction to Physical Geology

Authors: Christiansen, E.H. and Hamblin, W.K**.**

Publisher: Jones and Bartlett Learning, Prentise Hall, 2015, ISBN:978-1-4496-5984-3

Other Recommended Texts & Reading

Hamblin and Howard**, Exercises in Physical Geology,** 12th Edition, Prentice Hall, ISBN: 0-13-144770-X

Prequisites: Sophomore Status

Course Description

Studies science of geology with emphasis on physical geological processes. Stresses the principle of uniformity of process in the context of rock and soil formation, transformation, deformation, and mass movement. Includes aspects of historical geology and geomorphology.

Course Objectives (General)
By the end of this course, the student will be able to:

Course Topic 1: For each course topic, list the measureable learning outcomes for that topic. Use Bloom's Taxonomy to help with action words that can be measured.

https://www.cte.cornell.edu/documents/Assessment - Blooms Taxonomy Action Verbs.pdf

Course Topic 2: Repeat as above.

POLICIES & PROCEDURES

Academic Integrity: It is expected that NJIT's University Code on Academic Integrity will be followed in all matters related to this course. Refer to NJIT's Dean of Students website to become familiar with the Code on Academic Integrity and how to avoid Code violations.

https://www.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf

Communication: Describe your policy on how you communicate to the class outside of class (i.e., e-mail, Moodle, etc.)

Lectures/Class: Describe your policy on attendance at lectures and in class. Describe how you expect the students to participate during classes.

Handouts: Describe your policy on how handouts will be made available (e..g, online, in-class printouts, etc.).

Homework: Describe your policy on how often homework will be assigned and if they will work individually or in groups.

Homework Format: Describe your policy on how homework should be formatted. Provide and distribute an example of properly formatted homework if possible.

Late Homework: Describe your policy on how late homework will be accepted, if it is, and how deductions will be taken.

Homework Solutions: Describe your policy on how homework solutions will be distributed and made available.

Exams: Describe your policy on quizzes/exams. Explain what resources students will be allowed to take in during quizzes/exams.

Calculation of Course Grade: A weighted average grade will be calculated as follows:

Describe how your assignments, exams, quizzes, projects, etc. are weighted.

Homework-Labs	35%
Attendance	10%
Project	20%
Final Exam	35%

The minimum requirements for final letter grades are as follows:

A = 90.0%, B+ = 85.0%, B = 80.0%, C+ = 75.0%, C = 70.0%, D = 65.0%, F < 65.0%

If desired, include a statement here on how grades are, or are not curved in computing the final grade.

Instructor Commitment: You can expect the Instructor to be courteous, punctual, organized, and prepared for lecture and other class activities; to answer questions clearly; to be available during office hours or to notify you beforehand if office hours are moved; to provide a suitable guest lecturer or pre-recorded lecture when they are traveling or unavailable; and to grade uniformly and consistently.

Students with Documented Disabilities: NJIT is committed to providing students with documented disabilities equal access to programs and activities. If you have, or believe that you may have, a physical, medical, psychological, or learning disability that may require accommodations, please contact the Coordinator of Student Disability Services located in the

Center for Counseling and Psychological Services, in Campbell Hall, Room 205, (973) 596-3414. Further information on disability services related to the self-identification, documentation and accommodation processes can be found on the webpage at: (http://www.njit.edu/counseling/services/disabilities.php)

Course Schedule: Include a table with a preliminary schedule including estimated exam dates, course topics, project dates, etc.

Week Beginning	***LECTURE TOPIC***	***Assigned Reading Text***	***Assigned Reading Lab Manual (Optional)***
Jan. 22	Role of Geology in Engineering; Historical Notes; Environmental Dimension; Geo Quiz	Ch. 1,2	None
Jan. 29	Earth Structure and Processes; Topographic Map Interpretation	Ch. 1,2	Supplemental
Feb. 5	Geologic Time Scale; Absolute Dating; Fossils and Mass Extinctions; Geologic History of New York Metro Area	Ch. 8	Supplemental
Feb. 12	Mineral Properties and Identification	Ch. 3	Supplemental
Feb. 19	Minerals with Engineering and Industrial Importance	Ch. 3	Supplemental
Feb. 26	Igneous Rocks and Processes; Intrusive and Extrusive Structures	Ch. 4	Supplemental
Mar. 5	Sedimentary Rocks and Processes; Stokes Law; Diagenesis; Sedimentary Structures	Ch. 5	Supplemental
Mar. 12	Metamorphic Rocks and Processes; Veins; Rock Cycle	Ch. 6	Supplemental
Mar. 16th to Mar. 22nd	Spring Vacation		
Mar. 26	Rock Identification Chart; Rock as Construction Material; Rock Engineering	Handouts	Supplemental
Apr. 2	Weathering: Talus Slopes; Physiographic Provinces	Ch. 10 & 11	Supplemental
Apr. 9	Plate Tectonics; Seismicity and Earthquakes; Earthquake Engineering; Tsunamis	Ch. 7, 17, 18	Supplemental
Apr. 16	Relative Dating; Ground Water and Water Table; Carbonate Formations and Karst Areas	Ch. 8, 13	Supplemental
Apr. 23	Global Climate Change; Glacial Systems and Deposits: Till, Glaciofluvial, and Glaciolacustrine	Ch. 14	Supplemental

Apr. 24	Term Assignment Due. No Class		
Apr. 30	Final Exam		

Course Objectives Matrix - Course Number – Section Number

Strategies and Actions	Course Student Learning Outcomes	ABET Student Outcomes (a-k)	Program Educational Objectives	Assessment Methods/Metrics
Course Objective 1: For each course topic, list the measureable learning outcomes for that topic.				
Input a strategy and action	Input student learning outcome	Input related ABET student outcome(s)	Input related program educational objective (s)	Input assessment methods/metrics
Repeat as above	Repeat as above	Repeat as above	Repeat as above	Repeat as above
Course Objective 2: For each course topic, list the measureable learning outcomes for that topic.				
Input a strategy and action	Input student learning outcome	Input related ABET student outcome(s)	Input related program educational objective (s)	Input assessment methods/metrics
Repeat as above	Repeat as above	Repeat as above	Repeat as above	Repeat as above
Course Objective 3: For each course topic, list the measureable learning outcomes for that topic.				
Input a strategy and action	Input student learning outcome	Input related ABET student outcome(s)	Input related program educational objective (s)	Input assessment methods/metrics
Input a strategy and action	Input student learning outcome	Input related ABET student outcome(s)	Input related program educational objective (s)	Input assessment methods/metrics

CEE Mission, Program Educational Objectives and Student Outcomes

The mission of the Department of Civil and Environmental Engineering is:

• to educate a diverse student body to be employed in the engineering profession
• to encourage research and scholarship among our faculty and students
• to promote service to the engineering profession and society

Program Educational Objectives
Our **Program Educational Objectives** are reflected in the achievements of our recent alumni:

- **Engineering Practice:** Alumni will successfully engage in the practice of civil engineering within industry, government, and private practice, working towards safe, practical, resilient and sustainable solutions in a wide array of technical specialties including construction, environmental, geotechnical, structural, transportation, and water resources.
- **Professional Growth:** Alumni will advance their technical and interpersonal skills through professional growth and development activities such as graduate study in engineering, research and development, professional registration and continuing education; some graduates will transition into other professional fields such as academia, business, and law through further education.
- **Service:** Alumni will perform service to society and the engineering profession through membership and participation in professional societies, government, educational institutions, civic organizations, charitable giving and other humanitarian endeavors.

Student Outcomes

Our **Student Outcomes** are what students are expected to know and be able to do by the time of their graduation:

- an ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science and mathematics
- an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety and welfare, as well as global, cultural, social, environmental and economic factors
- an ability to communicate effectively with a range of audiences
- an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts
- an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks and meet objectives
- an ability to develop and conduct appropriate experimentation, analyze and interpret data and use engineering judgment to draw conclusion
- an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Updated 1/6/2025