

## CVEN 3698 ENGINEERING GEOLOGY – FALL 2021

**Instructor:** Bernard Amadei, ECOT 546, Tel: 303-929-8167  
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**Textbook:** No assigned textbooks. Multiple readings will be assigned in class.

**Teaching Assistant:** Hannah Whitworth [Hannah.Whitworth@colorado.edu](mailto:Hannah.Whitworth@colorado.edu)

### Core Topics:

- Engineering geology as an interdisciplinary field
- Planet Earth and its population
- Geologic hazards and resilience to hazards
- Minerals and their engineering properties
- *Igneous Rocks*: geologic classification
- Engineering properties of plutonic rocks
- Engineering properties of volcanic rocks
- *Sedimentary Rocks*: geologic classification
- Engineering properties of shales, sandstones, etc.
- Engineering properties of soluble rocks
- *Metamorphic Rocks*: geologic classification
- Engineering properties of metamorphic rocks
- Fundamentals of structural geology
- Distribution of rocks at and below the surface
- Processes, soils and soil properties
- Exploration of an engineering site
- Computational engineering geology

### Additional Topics:

- Topographic maps
- Attitude of planes: strike, dip, dip direction
- Geologic maps for engineers
- Sedimentary structures
- Geophysical methods
- Stereographic projection
- Case studies

**Lectures:** M, W, F 8:00 - 8:50 a.m., ECCR 1B51

**Office Hours:** By appointment (email)

**Grading:** Exam 1, 25%; Exam 2, 25%; Case studies, 20%; HW assignments, 30%.

**Websites:** <https://www.colorado.edu/faculty/amadei/courses/cven-3698-engineering-geology>

**Note** Classes start and finish on time. Attendance to classes will be recorded automatically. All homework assignments are due on time. ***Late assignments are not accepted*** (no exceptions).

## Course ABET Outcomes

Course learning outcomes mapped based on current ABET (Accreditation Board for Engineering and Technology) standards (H: high; M: medium; L: low):

1. an ability to identify, formulate, and **solve complex engineering problems** by applying principles of engineering, science, and mathematics [M]
2. 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 [L]
3. an ability to **communicate effectively** with a range of audiences [M]
4. 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 [M]
5. 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 [M]
6. an ability to develop and conduct appropriate **experimentation**, analyze and interpret data, and use engineering judgment to draw conclusions [L]
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies [L]

**Final Exam Policy:** see <https://www.colorado.edu/policies/final-examination-policy>

## Classroom Behavior

Both students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote or online. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. For more information, see the policies on [classroom behavior](#) and the [Student Conduct & Conflict Resolution policies](#).

## Accommodations for Disability

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the [Disability Services website](#). Contact Disability Services at 303-492-8671 or [dsinfo@colorado.edu](mailto:dsinfo@colorado.edu) for further assistance. If you have a temporary medical condition, see [Temporary Medical Conditions](#) on the Disability Services website.

## Preferred Student Names and Pronouns

CU Boulder recognizes that students' legal information doesn't always align with how they identify. Students may update their preferred names and pronouns via the student portal; those preferred names and pronouns are listed on instructors' class rosters. In the absence of such updates, the name that appears on the class roster is the student's legal name.

## Honor Code

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code academic integrity policy. Violations of the Honor Code may include, but are not limited to: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code ([honor@colorado.edu](mailto:honor@colorado.edu); 303-492-5550). Students found responsible for

violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found on the [Honor Code website](#).

### **Sexual Misconduct, Discrimination, Harassment, and/or Related Retaliation**

The University of Colorado Boulder (CU Boulder) is committed to fostering an inclusive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct (harassment, exploitation, and assault), intimate partner violence (dating or domestic violence), stalking, or protected-class discrimination or harassment by or against members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or email [cureport@colorado.edu](mailto:cureport@colorado.edu). Information about OIEC, university policies, [reporting options](#), and the campus resources can be found on the [OIEC website](#). Please know that faculty and graduate instructors have a responsibility to inform OIEC when made aware of incidents of sexual misconduct, dating and domestic violence, stalking, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about their rights, support resources, and reporting options.

### **Religious Holidays**

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. See the [campus policy regarding religious observances](#) for full details.

### **Activity-related Absences**

For varsity and club athletics, student organizations and other activities that may require absences, please let me know early in the semester, and at least two weeks in advance, of travel or activities that will require you to be absent for class meetings, so that we may arrange makeups or alternate deadlines.

### **Requirements for COVID-19**

As a matter of public health and safety due to the pandemic, all members of the CU Boulder community and all visitors to campus must follow university, department and building requirements and all public health orders in place to reduce the risk of spreading infectious disease. Students who fail to adhere to these requirements will be asked to leave class, and students who do not leave class when asked or who refuse to comply with these requirements will be referred to [Student Conduct and Conflict Resolution](#). For more information, see the policy on [classroom behavior](#) and the [Student Code of Conduct](#). If you require accommodation because a disability prevents you from fulfilling these safety measures, please follow the steps in the “Accommodation for Disabilities” statement on this syllabus.

As of Aug. 13, 2021, CU Boulder has returned to requiring masks in classrooms and laboratories regardless of vaccination status. This requirement is a temporary precaution during the delta surge to supplement CU Boulder’s COVID-19 vaccine requirement. Exemptions include individuals who cannot medically tolerate a face covering, as well as those who are hearing-impaired or otherwise disabled or who are communicating with someone who is hearing-impaired or otherwise disabled and where the ability to see the mouth is essential to communication. If you qualify for a mask-related accommodation, please follow the steps in the “Accommodation for Disabilities” statement on this syllabus. In addition, vaccinated instructional faculty who are engaged in an indoor instructional activity and are separated by at least 6 feet from the nearest person are exempt from wearing masks if they so choose.

Students who have tested positive for COVID-19, have symptoms of COVID-19, or have had close contact with someone who has tested positive for or had symptoms of COVID-19 must stay home. In this class, if

you are sick or quarantined, please contact me at [amadei@colorado.edu](mailto:amadei@colorado.edu) or 303-929-8167. Because of FERPA student privacy laws, students are not required to state the nature of their illness when alerting me.