

Course Syllabus

Course Description

EVEN 4100 Environmental Sampling and Analysis is a three-credit lecture, laboratory, and project course in which you will be introduced to the basics of characterization of sites contaminated by hazardous waste. What you learn in EVEN 4100 should be useful for starting a career in environmental consulting.

The *lectures* will cover procedures and techniques for characterization of hazardous waste sites. The lectures will be supplemented by background readings. The lectures and readings will be available on the course web site on the [Schedule](#) and [Extra Readings](#) pages. Most of the lectures will be given by the course instructors, and some will be given by guest lecturers with expertise in particular areas.

The laboratory sessions will include (1) hands-on sessions in the field for introduction to some basic sampling and characterization techniques and (2) instruction of the Hazardous Waste Operations (HAZWOP) curriculum for certification.

The *project* emphasizes the preparation and presentation of a Sampling and Analysis Plan (SAP). This year, the project will include a collaboration with a local stakeholder group, the [Left Hand Watershed Center](https://watershed.center/) (LHWC), to characterize the occurrence of metal contamination in the Left Hand Creek watershed, which has been affected by acid mine drainage for decades. We'll work with LHWC staff to plan and carry out sampling and analysis. For this course, the project will focus on the SAP and also include reporting of results to LHWC.

Course Objectives

1. Understand the basic procedures and techniques of environmental site assessment;
2. Observe some field techniques for environmental site assessment;
3. Develop team work techniques;
4. Improve writing skills for technical reports; and
5. Obtain certification for HAZWOP.

Prerequisites

To take EVEN 4100, you need to have taken EVEN 4404 Water Chemistry and EVEN 4424 Environmental Organic Chemistry. If you have taken the equivalents of these courses, you may request instructor permission to register.

Communication I'll use email for general notices, changes in assignments, and time-sensitive changes

in schedule. Please pay attention to email before laboratories. I'll use the Discussion section in the Canvas course page, too, to record exchange of course information.

Lectures, laboratory assignments, and extra materials will be will be posted on the Canvas course site. Lectures will be available as Microsoft PowerPoint files on the [Schedule](#) page by the morning of each class. They can be viewed, printed for class, or downloaded for studying.

Numerical Grading

Laboratory Assignments (30 points total)

- Number: 4 labs, 6 points each
- Format: responses to questions in laboratory assignments
- Due Dates: usually one week after the laboratory period
- Collaboration: To be specified for each assignment; some submitted individually, some submitted as teams (3-4 students)
- Grading: by laboratory instructor; approximate grading scale:
 - 6: complete and accurate...
 - 4: complete and partially accurate...
 - 2: partially incomplete and partially inaccurate...
 - 0: late or not submitted

HAZWOP Quizzes and Tests (40 points total)

- Number: 5 quizzes, 2 points each (10 points total)
- 2 tests (midterm 12 points, final 18 points)
- Format: multiple choice and short answer quizzes
- Schedule: corresponding with HAZWOPER lectures and exercises
- Collaboration: none
- Grading: HAZWOPER instructor

Sampling and Analysis Plan and Results Reports (36 points total)

- Number: two (SAP, 24 points; Results, 12 points)
- Format: technical reports; details to be provided
- Length: SAP: 30 pages; double-spaced; Results: 10 pages; double-spaced
- Due Date: due dates for drafts and final reports; see [Schedule](#).
- Collaboration: team (3-4 students)
- Grading: lecture instructor; total of 30 points for reports, total of 6 points for team contribution rating; details to be provided.

Letter Grading

Letter grades will be assigned on the basis of this scale:

A: complete or near-complete mastery of the course material, completion of all assignments, and consistent participation in class

B: thorough understanding of the course material, completion of all assignments, and consistent participation in class

C: insufficient understanding of the course material, one or two incomplete assignments, or lack of participation in class.

D: poor understanding of the course material, three or four incomplete assignments, or lack of participation in class.

F: no understanding of the course material, five or more incomplete assignments, or frequent (unexcused) absence from class.

Over the past five years I've taught the course, the average course grade is a A-/B+ and the range is usually A to B-. Grades below B- have been given infrequently.

University Policies

Students with disabilities will be accommodated in class following [University policy \(https://www.colorado.edu/disabilityservices/students\)](https://www.colorado.edu/disabilityservices/students).

Students with conflicts between religious observance dates and course examinations or assignments may request a change in the course schedule following [University policy \(http://www.colorado.edu/policies/observance-religious-holidays-and-absences-classes-andor-exams\)](http://www.colorado.edu/policies/observance-religious-holidays-and-absences-classes-andor-exams).

Inappropriate and disruptive class room behavior will be dealt with following [University policy \(http://www.colorado.edu/policies/student-classroom-and-course-related-behavior\)](http://www.colorado.edu/policies/student-classroom-and-course-related-behavior).

Breaches of academic integrity will be dealt with following [University policy \(http://www.colorado.edu/policies/academic-integrity-policy\)](http://www.colorado.edu/policies/academic-integrity-policy).

Discrimination or sexual harassment will be addressed following [University policy \(http://www.colorado.edu/policies/discrimination-and-harassment-policy-and-procedures\)](http://www.colorado.edu/policies/discrimination-and-harassment-policy-and-procedures).

Instructor

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Course Summary:

Date	Details	
Thu Sep 19, 2019	 Laboratory 1 Phase 1 Environmental Site Assessment (https://canvas.colorado.edu/courses/53956/assignments/553397)	due by 1pm
	 HAZWOP Lab 1 Exercise (https://canvas.colorado.edu/courses/53956/assignments/555018)	due by 2:30pm
Tue Sep 24, 2019	 Project proposal (https://canvas.colorado.edu/courses/53956/assignments/553375)	due by 1pm