

CHEM 631

Environmental Fate & Transport

Spring 2022

Instructor: Prof. Tom Trainor

Office: Reichardt 176

Phone: 907-474-5628

Email: tptrainor@alaska.edu

Lecture: TBD

Office Hours: By appointment

Textbook: Environmental Organic Chemistry second edition (2003) by R.P. Schwarzenbach, P.M. Gschwend and D.M. Imboden

Course Description (from the UAF catalog): Examination of the physical properties that govern the behavior, fate and transport of contaminants released into the environment. Topics include air-water partitioning and exchange, organic solvent-water partitioning, diffusion, sorption, chemical and biological transformation reactions, and modeling concepts.

Course Goal: This course is designed to teach students how to determine what happens to a compound released into the environment. We will focus on low molecular weight organic compounds, but the principles can be applied broadly.

Learning Outcomes: In Chemistry 631, you will become familiar with the principles and techniques used to describe the behavior, fate, and transport of a compound released into the environment. You will also learn how to obtain the physical and chemical properties of a compound for use in determining the compound's fate. At the end of the course, you should be able to perform a risk assessment for a compound released into the environment.

Grading: Your course grade will be determined by your performance on a combination of assignments identified below.

Exams	50%
Homework	30%
Project	20%

Important Dates:

Alaska Civil Rights Day (no classes)	Jan. 17
Last day to drop class (course not on academic record)	Jan. 21
Spring Break	March 7-11
Last day for student- or instructor-withdrawal ("W" on transcript)	Mar. 25
Last day of instruction:	April 25
Final exam:	TBD

Exams: Exams are 50% of your grade. We will have at least one in-class midterm exam. The final exam will likely be open book / take-home. If you are unavailable during a scheduled exam time please let me know as soon as possible.

Homework: Homework is a very important component of this class. You must practice using the concepts and solving problems to do well in the course. The homework problems provide you with an opportunity to learn how to approach a problem and the mechanics of actually doing the problem. The exam questions will often be similar to the homework questions, so doing the homework prepares you for the exams.

If you have any difficulties with the homework, please see me. You are strongly encouraged to work in groups to solve the homework problems.

Class projects: The class project will consist of a literature review on your chosen topics. The paper should be about 10-15 pages (not including references). The introduction should provide a concise description of the chosen topic and the broader environmental context. The body of the paper should discuss the issues in the context of environmental partitioning and transformations (and transport), providing a review of information from the literature relevant to “understanding” environmental fate and transport. Your conclusions should provide a critical assessment of the literature on your topic, and suggestions for future investigations.

You will be asked to present a 15 minute synopsis of your topic in class (10 minute talk and five minutes for class discussion). **Blackboard:** CHEM 631 has a site on Blackboard (<http://classes.uaf.edu/>). On the site, you will find the syllabus, homework assignments, and other relevant documents.

Chemistry and Department Policy on Cheating: Any student caught cheating will be assigned a course grade of “F”. The student’s academic advisor will be notified of this failing grade and the student will not be allowed to drop the course. Unauthorized collaborations during exams and plagiarism are *examples* of cheating.

Students with Documented Disabilities: If you have a documented disability and need reasonable academic accommodations, you should discuss these with me during the first two weeks of class. You will need to provide documentation of your disability to the UAF Office of Disability Services at 208 Whitaker. If you have questions, please contact the director of Disability Services at 474-5655, TTY 474-1827, uaf-disabilityservices@alaska.edu, or through www.uaf.edu/disability/.