

Course Syllabus
CEE 176S/276S: Instrumental Analysis of Emerging Contaminants in the Environment

Office hours: TBD

Lectures: Monday and Wednesdays 1:15-2:45 pm

Lab or Discussions: Friday (Time TBD)

Lecturers:

Angela Lin

yuchenlin@ntu.edu.tw

Diana Lin

di.lin@stanford.edu

Niveen Ismail

niveen@stanford.edu

Course Pre-requisites: General Chemistry required, Organic Chemistry recommended

Course Reader: Compilation of instructor's notes and articles from other sources.

Review the assigned sections before class.

Reference Texts (Not Required):

- *Contemporary Instrumental Analysis*, K. A. Robinson and J. F. Robinson, Prentice Hall.
- *Environmental Analytical Chemistry*, F. W. Fifield and P. J. Haines, Blackwell Science.

Course Description: This course provides an introduction to the occurrence and behavior of trace organic compounds in the environment and focuses on research approaches to investigate these compounds. Principles of analytical techniques and experimental approaches to detect and monitor trace organic contaminants in the environment will be examined. Students will critically review published original research and prepare an original research project proposal.

Learning objectives:

- To comprehend the fundamental principles of analytical techniques
- To understand how to qualitatively and quantitatively assess the occurrence of trace organic compounds
- To develop the skills necessary to design and execute studies on the behavior of organic contaminants in the environment
- To effectively communicate concepts and ideas in the form of a project proposal and presentation for an environmental study
- To critically review technical literature with respect to study design, data quality, and results

Grading: The course may be taken for a letter grade only. Letter grades will be based on a 100-point total score. The total score includes:

Homework/Lab Reports	35%
Project Proposal	20%
Oral Presentation	10%
Final Exam	25%
Participation	10%

Course Format and Expectations

Lectures: Materials will be provided at the lecture or online through Coursework. Students are expected to attend and participate during lectures.

Lab or Discussion sessions: Friday sections will consist of either discussion-based critical evaluations of research articles led by students enrolled in the class or instructor-led 'lab' sessions focused on a different analytical technique. The "lab" sessions will be simulation based and will not entail working directly at a laboratory bench. The purpose of these sessions is to provide breadth in understanding the application of fundamental theories and to develop qualitative or quantitative skills to analyze chemical occurrence and fate in the environment. Attendance during discussion and lab sessions is required; please speak with the instructor individually about excused absences.

Homework/Lab Reports (35%)

- Pre-lab questions will be assigned one week prior to ensure the lab material is read beforehand and students are prepared for class.
- Post-lab questions will be assigned as part of the lab report write-up.
- Lab report will be due one week after the lab session.
- Lab report format and examples will be posted on Coursework.
- Lab reports are to be submitted by individual students. Students may discuss the assignments among themselves, but must conduct the actual computations and write up their work without referring to others' solutions. In other words, observe the spirit of the Honor Code; if in doubt, ask the instructor.
- Any late lab report submissions will have 20% of the score deducted from the total. Lab reports will not be accepted more than one week after the due date.

Participation (10%)

- To assist in preparing for journal article discussions, 3-4 discussion points on an assigned journal article must be submitted on Coursework by 5pm on the Wednesday prior to the discussion session. (5%)
- Each student will lead one discussion session as part of a group. (5%)

Project (20%)

- Each student will prepare a National Science Foundation (NSF) style 2-page project proposal (20%) and present the proposed research in class during an oral presentation (10%). One class period will also be dedicated to preparing and delivering an effective oral presentation.

Final Exam (25%)

- The final exam will include topics covered during the lab sessions and will require students to answer questions associated with a chosen publication that will be available prior to the final exam.

Provost's Statement concerning Students with Disabilities

Students who have a disability which may necessitate an academic accommodation or the use of auxiliary aids and services in a class must initiate the request with the Disability Resource Center (DRC) located within the Office of Accessible Education (OAE). The DRC will evaluate the request with required documentation, recommend appropriate accommodations, and prepare a verification letter dated in the current academic term in which the request is being made. Please contact the DRC as soon as possible; timely notice is needed to arrange for appropriate accommodations. The OAE is located at 563 Salvatierra Walk (phone 650-723-1066; TDD 725-1067).

Honor Code Violations

Violating the Honor Code is a serious offense, even when the violation is unintentional. The Honor Code is available at: www.stanford.edu/dept/vpsa/judicialaffairs/honor_code.htm. You are responsible for understanding the University rules regarding academic integrity; you should familiarize yourself with the code if you have not already done so. In brief, conduct prohibited by the Honor Code includes all forms of academic dishonesty, examples are:

copying another student's exam, unpermitted collaboration, and representing as one's own work the work of another.

- Copying from another student's exam paper or allowing another to copy from your own paper
- Plagiarism (see links posted on coursework)
- Unpermitted collaboration
- Revising and resubmitting a quiz or exam for re-grading, without the instructor's knowledge and consent
- Giving or receiving unpermitted aid on a take-home examination
- Representing as one's own work the work of another

Violations of the Honor Code will result in a failing grade for the course.

If you have any questions about these matters, speak to any of the three lecturers.