

COLLEGE OF CHEMISTRY COURSE GUIDE (../INDEX.HTML)

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CHEM C182/EPS C182 - ATMOSPHERIC CHEMISTRY AND PHYSICS LABORATORY (3 UNITS)

COURSE OVERVIEW

SUMMARY

EPS/Chem C182 is a laboratory class that is offered at the undergraduate level to provide “hands-on” experience with the fundamentals of chemistry, physics, and instrumentation necessary to understand and probe the atmosphere. The class is typically only for EPS majors but Chemistry and Chemical Biology majors are allowed to take it in replacement of their physical chemistry lab course (Chem 125) if there is space. The class size is 30-40 people with laboratory sections consisting of only 2 people at a time.

PREREQUISITES

EPS 50 and 102 with grade of C- or higher OR Two of the following: Chem 120A (chem120a.html), 120B (chem120b.html), C130 (chemc130.html), or 130B (chem130b.html) with grade of C- or higher(one of which may be taken concurrently)

Course is only offered in the Spring

TOPICS COVERED

- UV-Vis Spectroscopy
- Absorption Spectroscopy of Ozone
- Global Warming Potentials/The Greenhouse Effect

- Atmospheric Radiative Transfer
- Kinetics and Measurements of the Atmosphere
- The Stratosphere
- General Circulation Models

LABORATORY TOPICS COVERED

- Electronic spectroscopy
- Ozone column measurements (Absorption spectroscopy)
- IR spectroscopy
- Computer simulation analysis (ex. Global Climate Models)
- Radiosonde data analysis (from weather balloon)
- Knudsen effusion method

WORKLOAD

COURSEWORK

- 7 lab assignments (3 physical chemistry experiments, 2 computer simulations, 2 field site measurements)
- 5 individual 30-minute oral examinations based on labs
- 1 field trip (with a written report)
- 1 final exam based on lecture material (finals week)

TIME COMMITMENT

1.5 hours of lecture per week; Sign-up for a time for the following: three 30 minute pre-lab lectures, three 2-3 hour labs, one 4 hour field trip to OAK Airport, 5 30 minute oral exams; Up to 8 hours of homework every other week

CHOOSING THE COURSE

WHEN TO TAKE

This class fulfills the physical chemistry lab requirement for Chemistry majors (OR Chem 125) and Chemical Biology majors (OR Chem 125 OR Chem 105). **It is Spring-only.** Typically, students take it in their 3rd or 4th year.

ADDITIONAL COMMENTS AND TIPS

The physical chemistry concepts required for this course are fairly basic and are extensively covered in the beginning of the course.

Gain strong skills working with Excel and large data sets from data analysis.

The lab reports are a guide for what will be tested during the oral examination but they are not formally graded (however completing them is essential to doing well on the exams).

The oral examinations are relatively straightforward with a couple questions beyond the scope of the procedure/analysis questions that require you to think about the applications of the lab

Material is interesting and relevant to current environmental issues

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COLLEGE OF CHEMISTRY PEER SERVICES

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