

Chemistry 357 Physical Chemistry Laboratory for Spring 2017 will begin on Thursday 19 January 2017 at 2:15-5:15 PM in room 215 Life Sciences Center (LSC).

In subsequent weeks there will be a recitation each Monday 2:15 – 3:35 in 215 LSC and a laboratory session each Thursday in 301 LSC 2:15-5:15. (You will usually be done obtaining data before 5 PM.)

You will need to have a flash drive for this course and **must** bring it to each class. During the experiments on Thursdays you will save the data you collect on your flash drive. You should examine data on your flash drive before leaving 301 LSC and also send it to your e-mail account.

This course follows the real-world practice of having zero tolerance for lost data. Plan ahead and back-up everything.

You do not need a text for this course. All necessary materials will be posted on BlackBoard and/or handed out in recitation or in laboratory.

The reports for this course are due at the beginning of class (before 2:20 PM) at the Thursday lab class one week after the lab is performed. There will be a discussion session on Monday between the time you do an experiment on a Thursday and the time the report is due the following Thursday. You should start your lab reports very soon after they are performed so that you know what to ask at the Monday session.

No credit will be given for late laboratory reports.

This course requires that you are familiar with the use of some aspects of Microsoft Excel and also Gaussian computational chemistry. The first Thursday will be Excel and Gaussian training; an exercise using this material will then be due at the beginning of the Thursday lab session second week. You will also need to know how to perform statistical analysis of data and its interpretation. You will be given a handout on this subject and will use it for most of the laboratories. Graphical plotting of data using Excel will be used in combination with statistical analysis.

The laboratories that will be carried out and for which reports will be due are:

Weeks 2 & 3 Rotation Vibration spectra of HCl and statistical analysis of the results

Weeks 4 & 5 Raman spectra of liquids Infrared spectra of CO₂ & SO₂

Weeks 6 & 7 Keto-Enol tautomerization NMR Cyclohexane derivatives Raman

Weeks 8 & 10 Aromatic molecule absorption and fluorescence CdSe Quantum Dots

Week 11 NMR of a hydrolysis reaction

Week 12 Determination of an unknown compound

Weeks 13&14 DABCO UV absorption Pyrene Excimer fluorescence

In weeks 4 through 10, 13, & 14 there will two experiments each week. You will do one experiment one week and the other experiment the other week. There will thus be 12 reports (including that for the initial Excel/Gaussian exercise) that, with the final exam, will be the basis of your grade.

FINAL EXAM: Monday May 1 2017 2:15-3:30 PM

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Academic Honesty: Complete academic honesty is expected of all students. Any incidence of academic dishonesty, as defined by the SU Academic Integrity Policy (see <http://academicintegrity.syr.edu>), will result in both course sanctions and formal notification of the College of Arts & Sciences. In this course, students are allowed and encouraged to work and study together, but all assignments turned in must be the work of the individual student and may not be copied from another student's work, the text, or any other source, except for short quotations with proper attribution.

Disability Accommodation: Students with any sort of disability who may need special accommodations should see me right away. In order to obtain authorized accommodations, students should be registered with the Office of Disability Services (ODS), 804 University Avenue, Room 309, 315-443-4498 and have an updated accommodation letter. Accommodations and related support services such as exam administration are not provided retroactively and must be requested in advance.

SU's religious observances policy, found at http://supolicies.syr.edu/emp_ben/religious_observance.htm recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holy days according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance provided they notify their instructors before the end of the second week of classes. For fall and spring semesters, an online notification process is available through MySlice/Student Services/Enrollment/My Religious Observances from the first day of class until the end of the second week of class.