

Lab Syllabus – Chemistry 285

DATE	TOPIC	DUE DATES
September 29	Introduction	
October 4	Lab 1	
October 6	Lab 1	
October 11	Lab 1	
October 13	Lab 2	
October 18	Lab 2	Lab Write-up 1 Due
October 20	Lab 2	
October 25	Lab 3	
October 27	Lab 3	Lab Write-up 2 Due
November 1	Lab 3	Project proposal & supplies list due
November 3	Lab 4	
November 8	Lab 4	Lab Write-up 3 Due
November 10	Lab 4	
November 15	Projects	
November 17	Projects	Lab Write-up 4 Due
November 22	Projects	
November 24	University Holiday	
November 29	Projects	
December 1	Projects	
December 6	Projects	
December 8	Projects	
December 16	Finals Week	Project Report Due

Projects will be performed in groups of 2; groups should contain people with different backgrounds, as much as possible. If you will need any esoteric supplies for your project, you might need to get the supplies list to Ignacio and Will before the November 1st date.

Lab Assignments:

There are a total of 7 labs that have been fully developed for this class. These are:

1. Quantum Confinement in CdSe Semiconductor Nanocrystals
2. Thermal Properties of Polymers and Polymer Blends
3. Photonic Materials – Synthesis and Characterization of Crystals of Silica Colloids (i.e. Synthetic Opals)
4. Electropolymerization of an Electrochromic Device Based on PEDOT
5. Synthesis and Characterization of High T_c Superconductors
6. Formation of a Polymer Based Light Emitting Diode
7. Polyanniline Nanowire Gas Sensors

We also have two new labs that will be assigned in the 3rd and 4th lab slots. These are:

1. Carbon Nanotube Based Transparent Conductors
2. Electrowetting and Electrochemical Switching of Thiol Monolayers

You will each do 4 of these labs during the first 6 weeks of the quarter. I will assign the labs so that everyone has a balanced set of experiments including both organic and inorganic materials, bulk and nanoscale materials, devices engineering and fundamental science. That being said, if any labs sound particularly interesting to you, please let me know and I will try to arrange things so that you can do them.

Due Dates and Grading for the Regular Labs:

The due dates for all the labs are listed on the reverse side of this page. There will be two kinds of reports. The first is a short (2 - 3 page) written report which will contain an abstract, minimal intro, along with results and data analysis. The goal is to write something like a technical report commonly used in industry to summarize your progress to your boss. Don't be fooled – short is harder to write than long! The second format will be a PowerPoint presentation on your experiment. Each report is worth 15% of your grade.

Projects:

For the last 4 weeks of the course, you will develop a new lab based on information from the literature. This development will be done in groups (usually 2 people). The goal is (1) to learn about something new that you have always been interested in, and (2) to create a new lab that can become a regular part of the Chem 185/285 curriculum. By working in a group with students from other departments, hopefully you can all teach each other about your field of expertise. Because new labs usually require new chemicals and sometimes new equipment, we need to start planning these experiments early. I have chosen November 1st as a due date for submission of preliminary experimental plans and for submission of purchase requests. If we hurry and place orders shortly after the 1st, you should have most things in by the project starting date of November 15th. That being said, if you anticipate needing anything really odd, it will have to be ordered farther ahead of time. As soon as you have found a partner and have a vague idea of what you want to do, come talk to me about your plans. The project will constitute 40% of your grade and you will both write a report and give a seminar on your new experiment.

Missed Class:

Since this is a lab class, it is obviously very important that you attend. There is no slop in the lab schedule for the first 6 weeks. As graduate students, however, you can use the lab outside the designated lab period, so this can be used to make up an occasional missed class.