

1.1 5.33 Roadmap

Welcome to the final, and culminating experience in your formal chemistry laboratory instruction at M.I.T. This subject, 5.33, is intended to synthesize a number of concepts you have encountered in lecture subjects, introduce you to techniques and procedures not encountered in earlier laboratory subjects, and in addition stimulate you to think about the following ideas:

☺ *Spectroscopy is much more than group frequencies and chemical shifts.* You will analyze a spectrum at high resolution to obtain structural information about a molecule, use intensity data to determine relative populations of species, relate line widths to lifetimes, perform ultrafast spectroscopic measurements in the time domain, and find out how optical properties of simple molecules are changing the world in which you live.

References: Experiments 1, 2, and 3

☺ *Quantum mechanics is actually good for something.* You will use computational chemistry to predict or verify quantities that you measure in the laboratory.

References: Experiment 2B

☺ *Laboratory safety and proper waste disposal are necessary but not sufficient.* In your laboratory work, you should always strive to reduce or eliminate the use or generation of hazardous substances in the design, synthesis, use, and disposal of chemical substances.

References: Section 2, Experiment 4

Outline and Organization

A. Safety Lecture: **MANDATORY SAFETY LECTURE 10 A.M. 9/8 (32-144)**

This lecture is mandatory for all students taking this subject.

B. Check in: Check-in to your laboratory cabinets will begin following this lecture, **at 1:00 p.m. in Room 4-460.** See: Subsections 1.2 of the Introduction.

C. 5.33 Lectures will be held on Tuesdays and Thursdays at 10 a.m. in Room 32-144 starting September 8. See: "Lecture and Conference Schedule", Section 1.3.

D. Laboratory conferences to introduce the experiments on which you are working will be held with each group at the beginning of each set of experiments. The 5.33 Laboratory is open to students between **12:30 p.m. and 5 p.m.**, Monday through Friday, except for designated holidays. See: "5.33 Laboratory Schedule, Fall Semester 2005", Section 1.4.