

ADVANCED ORGANIC CHEMISTRY LABORATORY (CHEMISTRY 0328)

SYLLABUS
Main Campus

Fall 2006
TEMPLE UNIVERSITY

Dr. Michael Wilson is the instructor

OFFICE HOURS: after most labs
and by appointment

Beury 349,352; phone 1-7147

E-MAIL: michael.wilson@temple.edu

COURSE DESCRIPTION:

This course provides experience in preparation and characterization of organic compounds in a setting similar to a graduate or industrial research laboratory. Advanced spectroscopy will be used extensively.

Prerequisite: Chemistry 122 - Organic Chemistry Lecture and Chemistry 124 laboratory. Knowledge of stoichiometry including determination of limiting reagents, solution preparation and the use of balances is assumed. The knowledge of advanced spectroscopy methods introduced in Chem 328 is also assumed. A pre class review of these topics is recommended.

SUPPLEMENTAL MATERIALS:

We will use many facilities available on the internet and Temple libraries. No text is required.

SCHEDULING:

MONDAY, 12:40-4:30 BE 401

WEDNESDAY, 1:40-4:30

THE FIRST LABORATORY DAY IS AUGUST 28, 2005.

THE LAB WILL MEET FOR 27 SESSIONS TOTAL.

LAB PROJECTS MAY REQUIRE BRIEF USE IN THE LAB OUTSIDE SCHEDULED TIMES.

EACH PROJECT WILL TAKE 2-4 SESSIONS.

MORE THAN ONE PROJECT MAY BE ACTIVE AT THE SAME TIME.

DROPS/ WITHDRAWALS/INCOMPLETES:

This course will adhere to the Department's and the University Policy regarding the last date to drop the course.

Withdrawals can occur until a later time. Please note that a withdrawal (W) is an institutional procedure that is not complete until the withdrawal form is completely executed.

SAFETY REQUIREMENTS:

Although the Department is sensitive to the need for demonstrating personal freedom, the laboratory can be a dangerous place for its expression. Therefore, in addition to denying you admission should you refuse to wear eye protection, the Department requires:

1. long hair be tied back
2. closed footwear be worn (open-toed shoes/sandals are not acceptable)
3. scarves, veils, etc. be tied back or removed during the lab.

ATTENDANCE POLICY:

Simply stated, you must attend class to perform the experiments. Early notification of expected absences will allow for the necessary adjustments. There is no "make up" mechanism available.

COURSE GOALS:

You will be learning experimental organic chemistry as a research endeavor. This means you will be working with materials at various scales.

The course is structured to deepen your skills acquired in introductory courses.

1. Computer resources will be introduced that will assist you in your experiments.
2. General safety protocols for the laboratory will be enforced.
3. A formal, permanent, bound laboratory notebook will be maintained.
4. Techniques and organic lab skills will be developed to permit the flexibility of choosing your own strategy without being tied to a prescribed set of activities.
5. Methods of characterization of organic materials will be utilized.
6. Writing reports will be developed so that the information will be useful to others will be emphasized.

This course is designed to allow the interested participant to rapidly develop the skills needed to immediately contribute to the efforts of a research laboratory.

GENERAL INFORMATION FOR THE CHEMICAL LABORATORY

Recognizing its obligation to your safety and the environment, and noting the general reduction in the scale on which organic reactions are run in industrial research laboratories that has accompanied the revolution in analytical procedures, small scale techniques will be used when appropriate. Since larger scales are sometimes unavoidable in the research environment, we will also "scaleup" some activities. Equipment suitable for both scales will be introduced. Training on hands on use of instrumentation as well as responsible care on their use will be central to this course. Careless use of any of these assets will not be acceptable.

General attention to detail is required to be successful in research, so we will expect you to pay attention to detail in this course.

YOUR NOTEBOOK:

Your notebook must be organized to allow you to readily prepare reports on the results of your experiments. These reports will be the primary student output for this course.

GRADES:

Grades will be calculated from the evaluations of the laboratory reports. After the completion of each assignment, you will submit a detailed report of your findings. Included will be your actual data, literature searches and commentary. The discussion will summarize the results and show how the results could be used by others in future work.