Chemistry 36B: Organic Chemistry Lab
Spring 2006

Faculty in Charge:
Dr. Jackie Bortiatynski
211 A Whitmore
jackie@chem.psu.edu
865-6632
Office Hours: Wednesday 10:00 a.m. till 12 noon.

Teaching Assistants:
Dan Landfried
Office Hours: Thursday 11:10-1:20 p.m.
In 206 Whitmore

Johannes Belmar
Office Hours: Monday 1:20 – 3:30 p.m.
In 206 Whitmore

Registrar Dates:
Late Registration & Drop/Add: January 9-24, 2006 (M/W), January 9-25, 2006 (T/Th)
Late Drop Deadline: April 7, 2006 (M/W), April 10, 2006 (T, Th)
Withdrawal Deadline: April 28, 2006

Course Description- Chemistry 36B is the biological option of organic chemistry laboratory. The course aims to teach general organic chemistry laboratory principles and theory with a biological focus.

Required Laboratory Materials:

Text Books:

Organic Chemistry Laboratory Notebook - 8.5” x 11” white quadrille sheets with 120 tear-out and carbonless carbon pages, published by Hayden McNeil.

Lab Equipment:
Eye Protection - Eye Protection is required at all times in the Organic Laboratory! See Information on Eye Protection in Chapter 2

Organic Lab Equipment Kit of expendable items including 2 NMR tubes, 15 TLC plates, 12 vials, etc. This kit is available at the Penn State Bookstore.

Combination or key lock

If you wear shorts or a top that exposes your midriff, you must purchase and wear a plastic lab apron to protect your midriff and legs. You CANNOT wear open-toe shoes in the lab!

Assignments: The laboratory assignments for Chem36B are different from Chem 36. Check the schedule distributed in Lab. Place the schedule in the flap of the back cover of the Organic Lab Guide.

Technique Experiments - Changes have been made to the technique experiments for Chemistry 36B. These changes can be found at the Chemistry 36 Web site on the Chemistry 36B page, http://courses.chem.psu.edu/chem36/. The changes provide a more biological connection to the techniques and allows for a more group-oriented approach.
**Lab Reports** – Pre lab reports will be hand written in black or blue ink in your lab notebook. The original copy of your prelab must be turned into your teaching assistant before you can begin the lab exercise. Post lab reports will be typed in Times 12 point font and turned in with laboratory notebook pages attached. Chemical structures can computer generated or hand drawn. Analytical data will be attached to the post lab reports as an appendix. The corrected reports will be returned to you in lab but you will not be allowed to take them with you. Your TA will keep the reports and you can discuss your graded during regularly scheduled office hours. See Chapter 3 of the lab guide for all the relevant details regarding the content of the pre and post lab reports.

**Project** – In lieu of synthetic experiments, students will work on team projects. Your team will be assigned one of two projects, and as a team you will work on this project for 10 laboratory periods. Each group is required to meet with Dr. Bortiatynski to present a research plan. The research plan must include a hypothesis, and a detailed description of the planned experiments as well as a description of the analyses that will be used during the project. After meeting with Dr. Bortiatynski, each team will be required to submit a rough draft of a proposal for their project. The proposal will include an introduction, a general procedure, a list of materials, and a work schedule for each team member. The proposal will be reviewed and graded by your TA. Your group will then meet with your TA to discuss changes that need to be included in the final draft of the proposal. You cannot begin work on your project until your TA has approved the final draft of your proposal.

During the project, each team will be required to turn in two mid semester progress reports. The first report will contain the most recent version of the introduction and the procedure sections of your final research report. The second report will summarize the work each team has accomplished to date, summary of results to that point, and all future laboratory work.

At the end of the project, each team will present a poster to their peers and faculty at a semester poster session with other chemistry lab courses. Each team will be required to write a formal report (one per team) of their group project, this report will be due during the final week of lab. More information about each of these assignments will be provided to you during the semester.

**Thought Questions** – During the project portion of the course you will be asked to answer one thought question at the beginning of each laboratory class for five of the last 10 class meetings. These questions will be based on a journal article that will be required reading for each of the designated class periods. Each article will be a key article for each of the projects being run within your section. Questions will be answered as a group, within your project teams.

**TA Evaluations:** See Grading Section 1.6 of Lab Guide

**Peer Evaluation:** You will be asked to anonymously evaluate the other members of your research group. This evaluation is a word document that is found on the Chem 36B web page. The completed form can either be emailed or given to the student’s TA. All information in the evaluation will be kept strictly confidential between the TAs and the instructor. The student evaluation is designed to provide valuable information concerning each student’s contribution to the research project.

**Required Reading:** You are expected to read the lab guide throughout the semester. This guide has been written to provide you with essential information including scheduling of assignments, grading, academic dishonesty, and Checking-In to lab. Please read Chapters 1-3 before the first lab lecture (second lab meeting).

**Absences:** You must contact your TA or Dr. Bortiatynski prior to the start of laboratory if you will be unable to attend lab. There are no official make up days scheduled however there is one day prior to the start of projects that can be used to complete technique lab work if necessary.
Grading

Technique Experiments:

- Recrystallization/Melting Points: 5 Bonus Points (if exceptional)
- Distillation/Boiling Points: 150 points
- Liquid/Liquid Extraction: 150 points
- Thin-Layer Chromatography: 300 points
- Column Chromatography: 150 points

Project Assignment:

- Article Review: 50 points
- Proposal: 100 points
- Thought Questions: 100 points (25 points each)
- Poster Presentation: 200 points
- Progress Reports: 100 points (50 points each)
- Final Report: 300 points

Technique Quizzes: 250 points
Final Exam: 100 points
Spectral Unknown: 100 points
TA Evaluation: 100 points
Peer Evaluation: 50 points
Total Points: 2200 points

PreLab and Post Lab Question Assignments:

1. Recrystallization: Answer Questions: e, g, j Prelab Exercise on page 76 and Post Lab Questions: 1, 7, 9 on page 109.

2. Distillation Experiment: Answer Questions: c, and h Prelab Exercises on page 117 and Question 1 from the Modification Document; Post Lab Questions: 1, 2, 4 on page 131.


4. Thin Layer Chromatography: Answer Questions: a, b, c, for Prelab I found in the Prelab Exercises on page 170 and for Prelab II: Answer Questions in the modification document. The post lab questions are: 3, 4, and 6 from the Post Lab Questions on page 187.

5. Column Chromatography: Answer Questions: a, b, c Prelab Exercises on page 193. The post lab question is found in the modification statement.