Chemistry 36B: Organic Chemistry Lab  
Fall 2006

Faculty in Charge:
Dr. Jackie Bortiatynski  
211D Whitmore Lab  
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865-2772  
Office Hours: Wednesday 10:00 a.m. till 12 noon.

Teaching Assistants:
Lauren Levine  
Office Hours: Fridays 2:35-4:35 pm  
In 206 Whitmore
Dan Landfried  
Office Hours: Mondays 2:25-4:35 pm  
In 206 Whitmore

Registrar Dates:
Late Registration & Drop/Add: Tuesday – Thursday September 5th – September 14th
Late Drop Deadline: Friday September 15th
Withdrawal Deadline: December 15th

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 TA 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 11 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 1.3 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.
**Late Policy:** There will be -10 points deducted for the first late day and 5 points deducted for every day subsequent day including weekends. See Late Policy in Section 1.3 of Lab Guide.

**Academic Dishonesty:** Your integrity is one of your most valued attributes as a scientist. You are earning a professional degree and as such you are expected to conduct yourself as a professional and uphold a professional code of ethics. Academic dishonesty is not limited to cheating on an exam or plagiarizing someone else's work. The following is a quote directly from the "PSU Faculty Senate Policies on for Students" regarding academic dishonesty.

"Academic integrity is the pursuit of scholarly activity free from fraud and deception and is an educational objective of this institution. Academic dishonesty includes, but is not limited to, cheating, plagiarizing, fabricating of information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students."

All University and Eberly College of Science policies regarding academic integrity/academic dishonesty apply to this course and to the students enrolled in this course. Refer to the following URL for further details on the academic integrity policies of the Eberly College of Science: [http://www.science.psu.edu/academic/Integrity/index.html](http://www.science.psu.edu/academic/Integrity/index.html).

Section 1.4 of the Lab Guide Reviews the Academic Integrity Policies.
Grading

Your course grade is based on your performance in three sections of the course:

- Technique Experiments ~45%
- Project Assignment ~39%
- Spectral Unknown, Final Exam, Evaluation ~16%

### Technique Experiments:
- Recrystallization/Melting Points -20 points if not completed
- Distillation/Boiling Points 150 points
- Liquid/Liquid Extraction 150 points
- Thin-Layer Chromatography 300 points
- Column Chromatography 150 points
- Technique Quizzes 250 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

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: a, d, i Prelab Exercise on page 78 and Post Lab Questions: 2, 5, 10 on page 113.

2. Distillation Experiment: Answer Questions: a(1), d Prelab Exercises on pages 120-121 and Question 1 from the Modification Document; Post Lab Questions: 3, 5, 6 on page 136.


4. Thin Layer Chromatography: Answer Questions: e, l, j, for Prelab I found in the Prelab Exercises on pages 173-174 and for Prelab II: Answer Questions in the modification document. The post lab questions are: 1, 5, 7 from the Post Lab Questions on pages 192-193.

5. Column Chromatography: Answer Questions: d, f, h Prelab Exercises on page 199. The post lab question is found in the modification statement.