

Chemistry 245L Course Syllabus – Spring 2012

Honors Laboratory in Separations and Analytical Characterization of Organic and Biological Compounds

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TA OFFICE HOURS

- The TA office hours will be announced during the week of lab check-in.
- Do not wait until the night before or the day of your lab to contact your TA for help.
- TA office hours will be held in Morehead Labs G01, ground floor of Morehead Labs.

COURSE OBJECTIVES

- To provide students with the opportunity to learn a variety of chromatographic and spectroscopic techniques.
- To provide students with an opportunity to develop practical laboratory skills.
- To teach students how to make reliable and accurate observations and measurements.
- To teach students how to interpret and report experimental results in a scientific manner.
- To continue developing a students critical thinking and problem solving skills.

LAB CHECK-IN

- Lab check-in for Chemistry 245L will take place the week of January 16th.
- Meet in Morehead Labs Room 408a (Mel-Temp Room) on your scheduled lab day and time for the start of lab check-in.
- Registered students who do not show up for their scheduled lab check-in will automatically be dropped from the lab.
- Every student must have a spring 2012 Chemistry 245L Lab Manual (Course Pack Publishing, 2nd Floor of Student Stores). The forms required to check-in are contained in the lab manual and are required in order to check in.

COURSE PRE- AND COREQUISITES

Prerequisites: Chemistry 101L and 102L.

Pre- or Corequisites: Chemistry 241H.

TEXTBOOKS & EQUIPMENT

- Spring 2012 Chemistry 245L Lab Manual – **Required**. Purchase from UNC Student Stores, Course Pack Publishing. Every student must purchase a lab manual. The forms required to check-in are contained in the lab manual and are required to be allowed to check into lab.
- Padias, Anne B. *Making the Connections: A How-To Guide for Organic Chemistry Lab Techniques*; Hayden McNeil Publishing: Michigan, 2007. – **Required**
- Harris, D. C. *Quantitative Chemical Analysis*, 8th or 9th ed.; W.H. Freeman: New York, 2010. - **Lecture Text**.
- Laboratory notebook. Pages must be pre-numbered and it must have carbonless duplicate pages. You may use an old lab notebook if it meets the criteria listed here. Alpha Chi Sigma (AXE) chemistry fraternity will be selling lab notebooks outside of Morehead Labs 102 the week of lab check-in for \$10.00 (cash or check).
- Scientific calculator.
- Laptop computer.
- Safety glasses. If you forget your safety glasses you will have to go to Morehead Labs 102 and purchase a new pair. If you have never had a chemistry lab at UNC you will receive a free pair the day of lab check-in. You will receive instructions during the lab check-in lecture.
- Lab Coat. The lab program is working on offering a disposable lab coat that students can purchase the day of lab check-in and charge to their university account, this should be a less expensive option.
 - The lab coat requirement will be discussed in more depth during the lab check-in lecture.
 - Lab coats must stay in the lab room, they may not be taken with you when you leave lab.

STUDENT LAPTOP COMPUTERS

- There are a number of experiments you perform in this laboratory course that require you to have your laptop. At the start of each experiment, the lab manual will state whether your laptop will be required or not for that experiment.
- Every student is required to bring their laptop computer when instructed, regardless of whether you will be working with a partner or in groups.
- If you forget to bring your laptop to lab you will not be allowed to perform that days experiment. We will allow you to make up the lab but we will penalize you 10 points for not coming to lab prepared.
- It is your responsibility to make sure your laptop is working properly. If you are having problems with your laptop you will need to resolve those problems before your scheduled lab, otherwise you will need to borrow a laptop from a friend.

SAKAI

- The 245L syllabus, software, announcements, grades and other important lab information will be available on Sakai (<https://sakai.unc.edu>).
- Lab reports are submitted through the “Assignment” feature on Sakai so it is important that you have access to the Sakai site for your lab section.
- If you cannot login to Sakai, please email Dr. Tiani (tiani@email.unc.edu).

ATTENDANCE & LAB MAKE-UP POLICY

- Read the section titled “Attendance Policy and Lab Absences” in the *Introduction to Chemistry 245L* chapter of the lab manual.
- You may not receive more than two excused absences (non-medical).

GRADING AND GRADING POLICIES

The letter grades for the course will be based on your overall percent score from the below weighted areas.

7 Lab Reports (100 points each)	58 %
6 Pre-Labs (5 points each)	2 %
11 Graded Lab Notebooks (10 points each)	5 %
Group Work and Lab Performance	10 %
• Group Evaluation (90 points)	
• Research Project Flow Chart (50 points)	
• Chemicals and Material List (50 points)	
Group Research Poster Presentation (100 points)	10 %
Group Research Paper (200 points)	15 %
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Total	100 %

GROUP WORK

Group work will be an integral part of this lab and your laboratory experience. Each student will be assigned to a group during the first lab period and will remain with that group throughout the semester. All the lab work, including the Research Project, will be carried out as a group. The reason for the emphasis on group work is to teach you to work efficiently as a research team in order to achieve a common goal.

During a typical lab period there is a lot of work to be accomplished in only a 3-hour period; standards must be prepared, glassware must be cleaned, samples must be prepared for analysis, computers and instruments must be set up, and calculations must be performed. The only way to complete all the required work and accomplish the goals

of the lab is to work effectively as a team. This will mean learning to lead in some instances and to take a supportive role in other instances. It also means that each group member must listen to their fellow group members and allow everyone to contribute. A portion of your lab grade will be based on your ability to work in a group and to achieve the set lab goals as a group. I should emphasize that your group work grade is not simply based on your ability to work together, but to achieve the experimental goals of the lab (lab performance).

LAB REPORTS

- The criteria for how to write the formal and informal lab reports are provided in the *Introduction to Chemistry 245L* chapter of the lab manual.
- The due dates for each lab report will be posted on Sakai under the “Documents” tab in the navigation bar.
- There is no collaboration on the writing of lab reports, this includes working up the data, answering experiment questions, discussing your data, and constructing plots. All the work within your report must be your own. The exception to this is the group research paper that will be written at the end of the semester (Experiment 7).
- If you are having difficulties writing your report or have questions, seek help from your TA.
- Lab reports are submitted electronically through the “Assignment” feature on Sakai. The instructions for uploading lab reports on Sakai are located on Sakai under the “Documents” tab in the left side navigation bar.

LATE LAB REPORTS

- Late lab reports must be emailed to Dr. Tiani (tiani@email.unc.edu). DO NOT email your report to your TA, do not try to upload your report late, and do not attempt to turn in a paper copy of your report.
- It is the responsibility of the student to verify that their lab report was properly uploaded to Blackboard and submitted by the scheduled deadline.
- Lab reports turned in late will be **penalized 10 % per day**.

PRE-LAB ASSIGNMENTS

- A pre-lab assignment will be due at the beginning of each lab period, with the exception of the week of lab check-in.
- Read the section titled “Pre-Lab Assignments” in the *Introduction to Chemistry 245L* chapter of the lab manual. The specific criteria for how to complete the pre-lab assignments are provided on the pages within this section.

LAB NOTEBOOKS

- Students must turn in the duplicate pages from their lab notebooks at the end of each lab period. If you leave lab without submitting your lab notebook pages, you will receive a zero for that experiments lab notebook grade.

- The specific requirements for how to maintain a lab notebook, as well as what should go into the lab notebook, are provided in the lab notebook section of the *Introduction to Chemistry 245L* chapter of the 245L Lab Manual.

RESEARCH PROJECT & PAPER

- Each group will be assigned a real world research problem at the beginning of the semester with a series of questions to answer.
- Each group will have the entire semester to research their problem, to design experiments that can answer the questions that have been posed and to distribute the experimental work load among the group members.
- The last four weeks of the semester have been reserved for groups to work on their projects. This time is independent research time and it is up to each group to determine how to use their time in order to achieve their research goals.
- Each group will present their data at a poster session for faculty, graduate students and fellow students.
- Each group will also write a formal research report on their project and findings.
- The goals of the research project are to provide students with an opportunity to solve a real chemical problem, to determine which analytical methods must be used to solve the problem, and to provide students with an opportunity for independent research based on experiments they have designed.
- The specific guidelines for the poster presentation and the research paper are presented in Chapter 7 of the Chemistry 245L Lab Manual.
- A component of the group work and lab performance grade will come from writing a flow chart to show your groups experimental strategy for solving the assigned problem. In addition, each group will submit a list of chemicals and equipment that will be needed to carry out the group's experimental work.
- One member from each group will be responsible for electronically uploading the flowchart and the chemical & material list on Sakai. The due dates for each of these items will be posted on Sakai under the "Documents" tab in the navigation bar.
- Each group member will be responsible for a major component of the paper to research and write. Once each group member has completed their research, all the group members will have to come together and determine how to organize and write the overall paper. All group members must participate in writing the paper and organizing it into a cohesive and well-written paper. Do not simply assign the task of writing the paper to one group member.

RESEARCH PROJECT PRESENTATION

In addition to writing a group research paper, each group will also present their research problem and results in poster format during a poster session held at the end of the semester. The poster session will afford each group the opportunity to educate their fellow classmates, as well as invited instructors and graduate students, on their specific project and how they approached tackling the problem(s). There will be a number of discussions regarding the research project and presentation throughout the semester.

HONOR CODE

The Department of Chemistry faculty adopted the following policy on September 9, 1977.

“Since all graded work (including homework to be collected, quizzes, papers, mid-term examinations, final examination, research proposals laboratory results and reports) may be used in the determination of academic progress, no collaboration on this work is permitted unless the instructor explicitly indicates that some specific degree of collaboration is allowed. This statement is not intended to discourage students from studying together or working together on assignments which are not to be collected.”

Additional information regarding the Honor Code at UNC-CH can be found at the following website: <http://www.unc.edu/depts/honor/>