Description: A one-semester-hour laboratory course designed to accompany organic chemistry lecture.

Pre- and Co-requisites: Grade of 'C-' or better in 1 year of General Chemistry Lecture and Lab and Chem 223

Materials: Making the Connections[3] By Anne B. Padias (ISBN: 978-0-7380-7436-8)
Permanently-Bound Composition Notebook
Full-length lab coat
Safety goggles (will be provided during safety training)

Course Homepage: Announcements, assessments, extra copies of the handouts, the grade book, etc. are posted on Sakai.luc.edu. You are responsible for this material, so you should check Sakai frequently.

Grading: Course grades consist of the following components:

Information Resources Assignment	10 pts
10 Pre-lab Exercises, 10 pts each	100 pts
10 Data Collections, 10 pts each	100 pts
10 Post-lab Exercises, 10 pts each	100 pts
Formal Lab Report	25 pts
Lab Notebook Evaluation	15 pts
In-Class Quiz #1	100 pts
In-Class Quiz #2	100 pts
	550 pts total

A>94%, A->90%, B+>88%, B>84%, B->80%, C+>78%, C>74%, C->70, D+>68%, D≥60%, F<60%

Information Resources Assignment: This assignment is completed via Sakai in order to familiarize you with the Merck Index and other authoritative, reliable resources to consult for finding physical property data on organic chemicals.

Pre-Lab Preparation: Success in organic lab depends on advance preparation. Therefore, there are several things students must do before coming to lab. One major component of pre-lab preparation is to thoroughly read and understand the experimental procedure and the assigned background reading listed on Sakai. Students are encouraged to have some pre-lab sections prepared in their lab notebooks based on this information. Additionally, before coming to class, a pre-lab exercise via Sakai must be completed. Some of the pre-lab questions will come directly, word-for-word out of the reading assignments to ensure students are completing the readings. Students are allowed unlimited attempts until the due date, and assessments must be submitted to count. Work that is saved but not submitted before the deadline will be ignored. Spelling, grammar and significant figures count.

Data Collections: During lab, students are strongly encouraged to record their results in a laboratory notebook. The exact format of the notebook is up to the student, especially for the technique experiments. There are some recommendations in the text and posted on Sakai. A properly-maintained notebook keeps all of the lab results in one place and will facilitate the completion of the post-lab exercises. It will also help to study for the in-class quizzes; however, notebooks are not allowed to be used during the quizzes.

To obtain the Data Collection points for each experiment, students must show their lab notebooks to their Teaching Assistant before leaving lab. The TA will sign lab notebooks and keep a record of everyone's results for each experiment. If a student does not report results before leaving the lab, the results can be emailed to the TA before the start of the next lab period but it will only be worth half credit. No data will be accepted after the start of the next lab period. When applicable, 2.5 points of the Data Collection score will count towards correctly identifying an assigned unknown compound. Data Collection point deductions will also be for safety violations, late arrival, not participating in lab, not finishing the experiment, etc.

Post-lab Exercises: Short questions pertaining to the experiment just completed will be posted on Sakai. These should be completed after lab ends and are due at the beginning of the next lab period. Students are allowed three attempts until the due date, and assessments must be submitted to count. Work that is saved but not submitted before the deadline will be ignored. Spelling, grammar and significant figures count.

In-Class Quizzes: The first quiz will be completed after the first six technique experiments, while the second will cover the last four experiments and stoichiometry calculations used in synthesis experiments. Students must bring a No. 2 pencil and their Student IDs. Goggles and lab coats aren't needed. The quizzes will include material covered in class, the background readings, as well as co-requisite and pre-requisite material. Points will be deducted for not following instructions.

Formal Lab Report: A formal, type-written lab report over the Elimination experiment will be due according to the date shown on the class schedule. This report should be clearly written using proper scientific grammar (do not use first person tense like "I did this" or "we saw this"). Detailed guidelines for the lab report will be discussed in class and posted on Sakai.

Lab Notebooks: While the particular style for technique labs can vary from student-to-student, there are some specific guidelines for documenting synthetic experiments in a lab notebook that are posted on Sakai. To ensure that students are properly setting up their notebooks for synthesis labs (which will be a major focus in the next half of the course), students will turn in lab notebooks on the last day of class, so that the general formatting and content for the two synthetic experiments (Substitution and Elimination) can be evaluated. Students will be provided with the opportunity to get their lab notebooks back, so that they can also use them in the next half of the course.

Attendance: Students are expected to attend every lab session. Due to safety constraints and size limitations, students are not allowed to make up an experiment in another section. Missing a lab period will result in an automatic zero for the Data Collection portion of that experiment. However, the Pre-lab Exercise and Post-lab Exercise can still be completed. The normal due dates will still apply, and absent students are responsible for all of the material on quizzes. Missing more than 2 experiments will result in automatic failure of the course.

There will be an attendance sheet that students are required to sign upon entering the lab. It is critical that the attendance sheet exactly match who is present in the lab in the event of an emergency. If someone must leave the lab after signing in (e.g.; to use the restroom, get a drink of water, etc.) be sure to log out on the attendance sheet. For safety's sake, in order to better results, and to be fair to lab partners, please limit any time out of the lab. Students who leave the lab for a period longer than 10 minutes will receive a deduction from the Data Collection points for that experiment.

Additionally, students must be signed in prior to the start of the pre-lab lecture to ensure everyone's on-time arrival to class. Tardiness or just not signing in will result in a point deduction from the Data Collection points for that experiment. Students must be present for the pre-lab lecture because important procedural and safety-related information is covered. Any student who misses a significant portion of the pre-lab lecture will not be allowed to perform the experiment and will receive a zero for the Data Collection points for that experiment. Safely working with chemicals requires undivided attention! As such, any behavior that indicates that a student is not paying attention during the pre-lab will result in the student not being allowed to perform the experiment. This includes, but is not limited to, sleeping, looking at one's phone or computer, talking, etc.

Safety Rules: Read the safety rules carefully and follow them throughout the course. Anyone who does not adhere to the safety rules will receive point deductions and may not be allowed to remain in the laboratory. You will be provided a pair of safety goggles at the beginning of the course. You must bring your eye protection and lab coat with you to every class, as well as dress in appropriate clothing and footwear. One time during the semester, a student may borrow goggles, a lab coat or socks. There will be a deduction from the Data Collection points for each item. These items cannot be borrowed more than once per semester.

Academic Integrity: Each student is expected to do her/his own work. Although the lab is constructed so students may work in pairs during an experiment, all work submitted for a grade must be an individual effort. The penalty for academic dishonesty is a grade of 'F' for the course.

Re-grades: All requests to have items re-graded must be submitted in writing within one week after the graded materials are returned to the student.

Late Policy: Unless otherwise specified, materials that are submitted late but on the same calendar day as they were due will receive a 10% deduction. There will be an additional 25% deduction for each day or portion of a day, including weekends, they are late after that.

Email: You must use your Loyola email address when contacting the TAs or the instructor for this course. Emails from outside sources are often blocked automatically. In the subject line of your email, put Chem 225-section number and TAs name.

Course/Instructor Evaluation – IDEA: Loyola has the IDEA program for instructor and course evaluations. At the end of the semester, you will complete an online evaluation of this course based on criteria set by IDEA and by the instructor. For this course, the main objective is learning to apply course material. In particular, our objectives are to characterize organic compounds by measuring their physical properties, isolate organic compounds using a variety of purification techniques and, lastly, to synthesize organic compounds using chemical reactions. Keep these objectives in mind throughout the course.

Co-Requisite Chem 223 Lecture Course: Students who drop the co-req lecture must be receiving a grade of D or better in the lecture course in order to continue in the co-req lab. To do this, students should seek assistance from the Department of Chemistry and Biochemistry office. Students with a grade of F must drop the co-req lab along with the lecture. No exceptions.

Contact: Dr. Eisenberg, FH-104, (773) 508-8714, jeisenberg2@luc.edu

Experiments

1. Functional Group Identification
2. Boiling Point Determination
3. Distillation and Refractive Index
4. Melting Point Determination
5. Crystallization
6. Extraction
7. Substitution
8. Elimination
9. Natural Product Isolation
10. Chromatography