

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

Pre- and Co-requisites: Grade of 'C-' or better Chem 223 and Chem 225; Chem 224.

Materials: Making the Connections³ By Anne B. Padias_(ISBN: 978-0-7380-7436-8)
Permanently-Bound Composition Notebook

Safety goggles are provided during safety training and must be brought to every lab. A full-length lab coat is also required.

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.

Online Safety Training: Students must watch the presentation posted on Sakai and score 5/5 on the Safety Training Quiz before being allowed to work in the laboratory. There are unlimited attempts.

Grading: Course grades consist of the following components:

Online Safety Training	5 pts
10 In-Class Pre-lab Quizzes, 5 pts each	50 pts
10 Products, 8 pts each	80 pts
10 Notebook Submissions to Sakai, 2 pts each	20 pts
Lab Notebook, Peer Evaluation	10 pts
Lab Notebook, Instructor Evaluation	25 pts
2 In-Class Exams	100 pts
Online Quiz via Sakai	30 pts
Safety Points	<u>30 pts</u>
	350 pts total

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

Pre-Lab Preparation: Success in organic lab depends on advance preparation. Therefore, there are several things you must do before coming to lab each week. One major component of your pre-lab assignment is to thoroughly read and understand the experimental procedure and the assigned background readings listed on Sakai. Before coming to class, you must complete the pre-lab portion of your lab notebook. Additionally, there will be an online Safety Briefing for each experiment, followed by a brief Safety Quiz, posted on Sakai.

NO ONE WILL BE ALLOWED TO PERFORM AN EXPERIMENT WITHOUT FIRST COMPLETING THE ONLINE SAFETY BRIEFING AND SAFETY QUIZ FOR THAT EXPERIMENT VIA SAKAI.

In-Class Pre-lab Quizzes: Each lab period will start with a short quiz. Quizzes are open notebook and at least one of the quiz questions will be drawn directly from the Table of Reagents. Quizzes end after 10 minutes or when everyone who was present when the quiz began is finished, whichever is shorter. Students who arrive late will not be given extra time. The online safety quiz counts as the first point for each pre-lab quiz. Students who require accommodations must complete the quiz in the SSWD office before class begins.

Lab Notebooks: The ability to keep good records is a valuable skill—no matter what your eventual profession. As an incentive to do a good job on your lab notebook, you are allowed to use your hand-written notebook pages on your pre-lab quizzes. After each experiment, you must scan your notebook pages and submit them via Sakai by the posted deadline. We recommend using an app on your phone, a flatbed scanner, or a photocopier to do this. Your notebook pages must be submitted in the pdf format to receive credit.

To help refine your notebook, there will be a Notebook Peer Evaluation after the first experiment. In order to receive full credit for the peer evaluation, you must evaluate the notebook pages of 2 other students. Your own

notebook peer evaluation score will be based on an average from the peer reviews. The scanned notebook pages for one additional experiment will be scored at a later point in the semester. Students will not know until the end of the term which experiment was selected for the notebook evaluation.

Products: At the end of each experiment, you must submit your product to your Teaching Assistant before you leave the lab. If you do not submit your product to your TA before placing it in the waste jar, you will not receive the product points.

Post-Lab Discussion Questions: Short questions pertaining to the experiment you have just completed will be posted on Sakai. Answers to the questions will also be posted. In order to be used effectively, all of the questions should be attempted before consulting the answers. Discussion questions are a study aid and do not count for points toward the final grade.

Exams: There will be two in-class exams during the semester. Exams are closed notebook and closed book. You must bring your student ID and a No. 2 pencil with you to the exam. Personal calculators, phones and watches are not permitted. Books and backpacks must be placed at the front of the room. Basic calculators will be provided. Exam 1 covers Reduction of Benzophenone, Oxidation of Benzyl Alcohol, and Structural Effects on Acidity. Exam 2 covers Diels-Alder, Nitration, and Ketone Derivatives. Exam dates will be posted on Sakai.

Online Quiz: At the end of the term, there will be one online quiz delivered via Sakai. The due date will be the beginning of the lab period for your section during the last week of class. Students may save their work and return to it, but the quizzes must be submitted to count. Only one submission is allowed. Work that is saved but not submitted by the deadline will receive an automatic 20% deduction. The online quiz will cover these experiments: Acylation of an Aromatic Amine, Fischer Esterification, and Polymers. The Aldol experiment is not covered.

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.

Attendance: There will be an attendance sheet that students are required to sign upon entering the lab. You are expected to attend every lab session. Due to safety constraints and size limitations, you will not be allowed to make up an experiment in another section. Missing a lab period will result in a zero for all work related to that experiment. However, with appropriate written documentation—doctor's note, jury summons, etc.—a student may complete an alternate, virtual version of the experiment via Sakai. Missing more than 2 experiments will result in automatic failure of the course.

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. Borrowing any required safety items will result in safety point deductions (1 pt per item per day).

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.

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 226-section number and TAs name.

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Experiments

1. Sodium Borohydride Reduction of Benzophenone
2. Potassium Permanganate Oxidation of Benzyl Alcohol
3. Structural Effects on Acidity
4. Diels-Alder Reaction of Anthracene and Maleic Anhydride
5. Nitration of *N*-acetyl-*p*-toluidine
6. Ketone Derivatives
7. Acylation of an Aromatic Amine
8. Fischer Esterification
9. Polymers
10. Aldol Condensation of Vanillin and Acetone