

CHEM V12AL: Organic Chemistry I Laboratory (CRN: 72016)

Fall 2017

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Office: SCI-330, **Phone:** (805) 289.6242; **Grades:** on Canvas

Office Hours: MTWR 7:30am-8:25am, MW 3:45pm-4:30pm in SCI-222, or by appointment

Class Meetings: MW 8:30am-11:20am in SCI-216

Please feel free to stop by my office at any time as I am more than happy to help whenever I can. Let me know if you wish to set up an appointment for additional help. I am also very available via e-mail and text, even during off hours, so please contact me whenever you have questions or concerns!

Free peer tutoring and computer access is available at the LRC and BEACH.

Requirements: Safety Goggles or Glasses & closed-toed shoes to be worn every meeting

ChemV12AL/V12BL manual (<http://venturacollegeorganicchemistry.weebly.com>)

Small bottle of liquid soap & 2 quart (minimum) plastic tub

Scientific Calculator

Prerequisites: CHEM V01A/CHEM V01BL with grades of C or better, CHEM V12A (Organic Chemistry) or concurrent enrollment

Course Description: This course is designed to work with its lecture component, CHEM V12A, to cover the utilization of the techniques of experimental organic chemistry including physical and chemical methods of purification, separation, and structure determination, with an emphasis on syntheses and mechanisms. Infrared spectroscopy and nuclear magnetic resonance are used extensively in this course. This course is a very large time commitment—expect to stay the entire class period every week and two to four hours outside of class.

Student Learning Outcomes: By the end of this course you should be able to:

- 1.) Synthesize simple organic molecules using modern reaction techniques and analyze the success of each synthesis on the basis of gravimetric, spectroscopic, and chromatographic evidence and physical properties.
- 2.) Analyze unknown substances using qualitative chemical tests and to confirm the analysis using the interpretation of infrared, nuclear magnetic resonance, and gas chromatography-mass spectroscopy.

See http://www.venturacollege.edu/faculty_staff/academic_resources/core_competencies/index.shtml

Course Objectives: Upon successful completion of this course, you will be able to demonstrate the following measurable skills and abilities:

- A. Measure melting points.
- B. Learn the appropriate technique for recrystallization of crude products in order to purify samples.
- C. Set up simple and fractional distillation apparatus to separate mixtures and collect purified samples.
- D. Carry out a gas chromatographic analysis of mixtures.

- E. Compose a permanent and intelligent record in a notebook and relate this data in lab reports.
- F. Handle organic chemicals in accordance to safety rules and dispose of them properly.
- G. Set up both Macro and Micro Simple Distillations to separate and collect purified samples.
- H. Set up both a Macro and a Micro Reflux apparatus to carry out organic syntheses. Use Infrared Spectroscopy to determine the success of every synthesis and separation, as well as the purity of a product.
- I. Use Infrared Spectroscopy to determine the identity of unknowns.
- J. Qualitatively determine the identity of unknown functional groups via chemical tests.
- K. Quantitatively calculate the amounts of reactants needed and/or product yields; in addition, determine amounts of leftover waste.
- L. Analysis and separation of mixtures via Paper and Thin Layer Chromatography; including visualization techniques.

A Note on Safety: Although all experiments have been tested and the laboratory equipped and managed for your safety, accidents can and do happen due to the danger inherent in experimentation. For your own safety, you should come to class prepared with pre-reading done in the appropriate attire and pay attention to all instructions, verbal and written, when in the laboratory. **Any accidents, no matter how small, must be reported to me immediately.**

Equipment Policy: You are responsible for returning the equipment in your locker and anything else checked-out of the stockroom in the same condition you received it. After the check-in period, any damaged or unreturned equipment will be charged to your student account.

Academic Integrity: Most experiments are designed for each student to work individually. Some may require groups, but all work will always be turned in separately unless explicitly told. Cheating on or plagiarizing any assignment or quiz is strictly prohibited and will result in a zero for that assignment and further disciplinary measures. This includes, but is not limited to, copying another's answers on any assignment or quiz and copy and pasting information from outside sources without proper citation.

Attendance: Attendance at every class meeting is mandatory. The course material must be performed during class time on the scheduled date; therefore, **there are no make-up labs**. By school policy, missing two weeks of class is grounds for being dropped from the course. Expect to attend every class meeting for the entire assigned time; all experiments are designed to go the full three hours.

Grading Policy: Grades are posted on Canvas. Your grade consists of the following:

Scoring: A (100-90%), B (89-80%), C (79-70%), D (69-60%), F (< 59%).

Quizzes (lowest dropped)	30%
Pre-Lab Assignments (lowest dropped)	10%
Post-Lab Assignments (lowest dropped)	45%
Final Exam	15%

Late Work: All assignments must be turned in at the start of class on the due dates listed on the schedule. Anything turned in beyond that time will be considered late and subject to a 20% penalty. Assignments will be accepted up to one week past the original due date; anything later will not be accepted. **There are no make-up labs.** If you miss an experiment, you may not make up the work and will receive an automatic zero for those assignments. This includes multiple day experiments.

Pre-Lab Assignments: Found in your lab manual after the experiment text, pre-lab assignments must be completed before attending that lab meeting at the beginning of class. **You may not begin the experiment until your pre-lab assignment is turned in.** Answers to the included questions can be found in the preceding experiment text itself. **Your lowest pre-lab score will be dropped.**

Post-Lab Assignments: A combination of in-class data and questions found in the lab manual after each procedure, the post-lab assignments are due after the experiment is completed. Often they will include computer print-outs and additional pages for answers and calculations. Some experiments will also require an additional written lab-report. These experiments are indicated with an asterisk on the schedule and will be weighted double. See the handout for instructions on written lab reports. Post-lab assignments are due at the beginning of class when the next experiment begins. **Your lowest post-lab score will be dropped before final grades are determined.** Your post-lab score will also include accuracy, where applicable, when required to correctly identify unknowns.

Quizzes: Quizzes will be given the first 10 minutes of class on the dates listed on the schedule. If you arrive late, you will not be allowed any extra time to complete the quiz. The questions will resemble those included on the previous experiment's post-lab assignment. You are required to have your own calculator for use on every quiz. **Your lowest quiz score will be dropped.**

Lab Final: Your lab final is cumulative. It will be a written examination consisting of questions seen previously on the in-class quizzes throughout the semester. It will be given on the last class meeting on **Wednesday, December 6th from 8:30am-10:30am.**

Check-Out: If, for any reason, you drop the course before the end of the semester, you must contact me and arrange a check-out time. Otherwise, all students will check out of their drawers the last assigned class meeting. Students who do not check-out will be subject to a \$15 fee to their student account.