CHEM V12BL: Organic Chemistry II Laboratory (CRN: 30485)
Spring 2019

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Office: SCI-330, **Phone:** (805) 289.6242; **Grades**: on Canvas
Class Meetings: MW 2:30pm-5:20pm in SCI-216
Office Hours: MW 12:45pm-2:15pm, TTh 8am-8:30am, 5:20pm-5:50pm or by appointment
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 V12AL with grades of C or better, CHEM V12B (Organic Chemistry II) or concurrent enrollment

Course Description: This course covers the utilization of the techniques of experimental organic chemistry including chemical and physical separations, purification, chemical syntheses, extraction methods, and structure determinations, with an emphasis on functional group analysis, reactivity and mechanisms. Extensive use of infrared spectroscopy, and analysis of gas chromatography, nuclear magnetic resonance, and mass spectra will be included. This course is designed to work with its lecture component, CHEM V12B, to introduce students to experimental organic chemistry. 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.

By the end of this course you should be able to…

1.) Synthesize 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.
3.) Students will locate, identify, collect, and organize data in order to analyze, interpret, or evaluate it using mathematical skills and/or the scientific method.

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

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

A.) Formulate target compounds using appropriate starting materials, reagents, and conditions.

B.) Propose the outcome of "what if" scenarios for organic reactions.
C.) Identify and evaluate physical and chemical properties of organic compounds to: a. Correctly identify compounds; b. Formulate separation schemes for mixtures of organic compounds; c. Assemble appropriate glassware to accomplish separation and identification; d. Plan syntheses to produce target compounds; e. Correctly store and dispose of organic compounds.
D.) Design and execute an experiment to make a target compound using micro-scale techniques (and continued use of macro-scale techniques).
E.) Prepare samples for infrared and GC analysis (theory of NMR, and mass spectral analysis).
F.) Analyze infrared and mass spectra to determine identity of organic compounds.
G.) Evaluate the properties of organic molecules through examination of structure and composition.
H.) Examine the MSDS resources to determine hazards and properties of organic molecules.
I.) Qualitatively test the purity of an unknown using a chemical test.
J.) Quantitatively calculate the amounts of reactants needed and/or product yields; in addition, determine amounts of leftover waste.

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 so that you may perform them with a group, but all work must 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 with other disciplinary measures possible. 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 <u>mandatory</u>. 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 <u>every</u> class meeting for the <u>entire assigned time;</u> all experiments are designed to go the full three hours.

Grading Policy: Your grade in this course consists of the following breakdown of points:

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

Quizzes (lowest dropped)	55%
Pre-Lab Assignments (lowest dropped)	10%
Post-Lab Assignments (lowest dropped)	35%

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. **If you miss the first day of a lab, you may not complete the lab at all.**

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. Three experiments will also require an additional written lab-report. These experiments are indicated with an asterisk on the schedule and will be weighted double and cannot be dropped. 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 covering the previous two experiments 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.**

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.

Important Dates to Remember:

Jan. 18	Last Day to drop with a full refund
Jan. 25	Last day to drop without a "W"
Mar. 25-29	Spring Break
Apr. 19	Last day to drop with a "W"
May 13-17	Final Exams