**General Organic Chemistry Lab 12BL**

MW 8:30 – 11:20am CRN: 30794

TTH 8:30 – 11:20am CRN: 31920

**Instructor: Michelle Davidson**

**Email:** [**mdavidson@vcccd.edu**](mailto:mhagerman@vcccd.edu)

**Class Website:** [**www.michelledavidsonchemistry.weebly.com**](http://www.michelledavidsonchemistry.weebly.com)

**Office: Sci 334**

**Office Hours:**

**Monday 12:50pm – 1:50pm**

**Tues/Thurs 8am – 8:30am (Sci 216)**

**Tues/Thurs 12:50 – 1:50pm**

**Wednesday 12:50pm – 1:50pm**

**Thursday 12:50 – 1:50pm**

\*In addition, feel free to email and stop by during any of my lab times for additional help. Emails are returned within a day unless it is the weekend – weekend emails will be answered on Mondays. Please be proactive and take advantage of office hours, STEM Harbor, and the LRC, in addition to the numerous websites with organic chemistry tutorials that you can search.

**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. Field trips may be required. CHEM V12AL with a grade of C or better ; and CHEM V12B with grade of C or better or concurrent enrollment..

**Required Materials:**

You must have your lab printed for the day that you are performing the experiment. You may use a laptop or tablet for the instructions instead of printing… absolutely no cell phones.

**Your prelab and postlab must be printed; electronic copies not accepted.**

**Each student must have the following the day you start Experiment 1.**

Box of Disposable Gloves

Bottle of Liquid Soap

Tupperware for soaking organic glassware (1 quart minimum)

Recommended: Lab coat

**Attendance:**

Attendance is mandatory. Labs are designed to utilize all 3 hours. Students are required to complete full labs – if you miss any day of an experiment, you will not receive any credit for that lab. In order to complete an experiment, you must be in attendance the first day on time – if you are more than 15min late, you will not be able to complete the experiment due to safety requirements. Students will be dropped for missing 4 classes as per school policy. If you are absent, you can still turn in your previous lab when you return with no penalty.

**Tardiness:**

You are legally required to attend the lab lecture in order to perform the experiment. If you are late (more than 15min), you will NOT be allowed to perform the experiment.

No extensions are given for quizzes if you arrive late.

**Academic Integrity:**

Be careful! Receiving an unfair advantage is considered academic dishonesty; work/quizzes etc. will receive an automatic 0 & be reported.

All organic labs are performed on an individual basis. This is an upper division course – a high level of self-sufficiency and productivity is required in addition to good safety habits and the respect of those around you. Many students seem to work together outside of the classroom when answering questions – but be careful…. if you are simply relying on someone else’s work, then you are not learning to the best of your abilities.

**Grading:** (Grades are recorded on CANVAS; please check regularly)

**Prelabs 10%**

**Postlabs 35%**

**Quizzes 55%**

\*In addition, students will lose points (up to a full letter grade for the lab) for the following:

Dirty workspace

Repeated breaking of organic glassware.

Unsafe behavior

**Prelabs:** These are to be completed BEFORE you come to class for the experiment that is to be started. Prelabs are due immediately at the start of class. Late work will be penalized. Your lowest prelab will be dropped only at the end of the semester.

**Postlabs & Data:** Please pay attention to verbal and written instructions. You are responsible for getting your lab work and assigned questions signed off by me when required – most work will be completed in class! Late work will be penalized. Your lowest postlab will be dropped only at the end of the semester.

**\*3 Written Lab Reports are required in 12BL. Please see the schedule for the experiments that require a typed report. Detailed guidelines that must be followed are attached. These scores may not be dropped.**

**Quizzes:** Given every two weeks. It is VERY IMPORTANT that you keep a lab notebook – we lecture up to an hour on important organic material in which you will be quizzed; those students that take good notes and study 8-10 hours per week, do well. Your lowest quiz will be dropped only at the end of the semester. **Please note: THERE ARE NO MAKE-UPS OF ANY KIND.**

\*A final note: lab can be a very intimidating setting for many students. Common courtesy, respect, and a high regard of safety is expected towards all people, equipment, and chemicals. All accidents, no matter how big or small, should be reported to me immediately. In addition, this lab requires a lot of time and research outside of the class when completing prelabs and postlabs – you will find yourself doing a lot of reading (internet, lecture text, etc). Please BE PROACTIVE – get help in advance!

**ON CAMPUS RESOURCES**

**EAC** (Administration Building): The Educational Assistance Center provides testing and accommodations for students. If you have already established accommodations with the EAC, let me know as soon as possible. If you think you might benefit from the EAC’s services, I’d be happy to go with you and introduce you.

**Tutoring Center** (LRC 1st floor): All VC students are eligible for free tutoring at the Tutoring Center. You can make an appointment or drop-in for help .

**STEM HARBOR**: Science students can get help from a variety of faculty in Sci 223. Schedule will be posted on CANVAS.

Please let me know if you have any additional concerns or need EAC accomodations.

**Student Learning Outcomes:**

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

CSLO-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.

CSLO-2 Analyze unknown substances using qualitative Chemical tests and to confirm the analysis using the interpretation of infrared, nuclear magnetic resonance, and/or gas chromatography-mass spectroscopy.

**Course Objectives:**

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

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

2. Propose the outcome of "what if" scenarios for organic reactions.

3. 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.

4. Design and execute an experiment to make a target compound using micro-scale techniques (and continued use of macro-scale techniques)

5. Prepare samples for infrared and GC analysis (theory of NMR, and mass spectral analysis).

6. Analyze infrared and mass spectra to determine identity of organic compounds.

7. Evaluate the properties of organic molecules through examination of structure and composition.

8. Examine the MSDS resouces to determine hazards and properties of organic molecules.

9. Qualitatively test the purity of an unknown using a chemical test.

10. Quantitatively calculate the amounts of reactants needed and/or product yields; in addition, determine amounts of leftover waste.