**General Organic Chemistry Lab 12AL**

MW 8:30 – 11:20am CRN: 72016

TTH 8:30 – 11:20am CRN: 76077

11:30 – 2:20pm CRN: 73084

**Instructor: Michelle Davidson**

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**Office: Sci 334**

### Drop-in Hours (in my office unless indicated otherwise)

### Mon: 12:50 – 2:50pm

### Tues: end of lab + 1hr or 2:20-3:20pm

### Wed: 8 – 8:30am (Sci 216)

### Thurs: 8 – 8:30am (Sci 216)

**Thurs: end of lab + 1hr or 2:20-3:20pm**

\*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 physical and chemical methods of purification, separation, and structure determination, with an emphasis on syntheses and mechanisms. Infrared spectroscopy is used extensively in this course. Field trips may be required. Prerequisites: grades of C or better in 1A/1AL, 1B/1BL, and 12A or concurrent enrollment.

**Required Materials:**

You must have your lab printed for the day that you are performing the experiment. You can print directly from our website OR purchase a lab manual at the bookstore.

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

Lab Coat

Box of Disposable Gloves

Bottle of Liquid Soap

Drying Towel

Tub for soaking organic glassware

Goggles (we have a class set – goggles must be worn, even over glasses.)

**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%** A 90.000% or higher

**Postlabs 25%** B 80.000% - 89.999%

**Quizzes 55%** C 70.000% - 79.999%

**Final 10%** D 60.000% - 69.999%

F 59.999% or lower

**\*Please note the grading scale – there are no rounding of grades – earn your grade. One quiz is dropped, one prelab is dropped, and one postlab is dropped; in addition, most postlab work is completed in class until it is correct – you already have a strong advantage.**

**\*You have 48hrs from pass-back to check your quiz or exam for errors & to contact me. No changes will be made after this time. If you are absent, you will not receive extra time – it is your responsibility to contact me & I can scan to you.**

**\*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 not be accepted. 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.

**\*2 Written Lab Reports are required in 12AL. 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 and are worth double a normal lab.**

**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 to account for any illness, tardiness, etc. **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 EAC provides eligible students with disabilities the required services and accommodations to ensure their academic success. EAC students increase their knowledge of available accommodations and services available to them, leading to an increase in confidence, self advocacy and academic success. (805) 289-6300

\*EAC exams are to be scheduled during normal class hours.

**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:**

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.

**Course Objectives:**

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/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.