CHEM 251 & 261 LABORATORY COMPONENT – Fall 2020
(Hybrid or Remote format)

INSTRUCTOR:
Dr. Maria de la Cruz
Office: Wrighton Hall 101D
Phone: 314-935-9401
e-mail: delacruzm@wustl.edu

COURSE DESCRIPTION: The organic chemistry laboratory is an introduction to methods in organic chemistry including separation, purification and basic spectroscopic analysis of organic compounds. For the Fall 2020 semester, the Organic Chemistry Laboratory I course will be adapted to both in-person (Hybrid format) and fully remote (online) participation.

COURSE WEBSITE: Linked through Canvas at https://mycanvas.wustl.edu/

COMMUNICATION: Dr. de la Cruz will send course messages and announcements through Canvas. Be sure your Canvas settings are such that you receive these notifications. Students with course-related logistics may reach out to Dr. de la Cruz via email and I will address these questions during office hours.

COURSE CALENDAR (schedule): A detailed course calendar is available in the “Course Documents and Information” Module in Canvas. There are four units of course materials. Each of the four units of the course material lasts for two weeks. For each unit, students will complete a Laboratory Experiment Report (Experiments 1, 2, 3 & 4) and a Virtual Experiment (Experiments A, B, C and D). For each unit, students will complete a Laboratory Experiment Report and a Virtual Experiment on alternating weeks.

LOGISTICS: The in-person (Hybrid format) students will be assigned to either the “Group 1” or “Group 2” schedule. Students who are assigned to the “Group 1 Schedule” will attend the lab on the first week of a unit, and those who are assigned to the Group 2 Schedule” will perform the lab experiment on the second week of a unit (see Course Calendar for specific details). The due dates of reports and specific lab room assignments will be posted in Canvas not later than September 16, Wednesday. Students who chose the remote (100% online) format will follow the “Group 1 Schedule” of their section. A pre-recorded lab video will be provided which will be made available in Canvas on Friday evening prior to the start of a new unit.

TEXTBOOK: The Organic Laboratory Manual and other laboratory content is provided free of charge through the course Canvas site and LabArchives. A printout copy of the lab manual is not required however, a student who prefers a printed lab manual can download the lab content in pdf form directly from LabArchives. This will be available to students by the first week of September (or earlier) and the instructions for accessing the LabArchives will be provided during that time.

REQUIRED COURSE MATERIALS: ALL students must have access to an internet-capable computer or tablet, and access to a printer is strongly recommended. Students performing the experiments in-person will need to bring a wifi-enabled computer to lab room, which must be protected from spills/contamination with either a keyboard cover (provided by the student) or disposable plastic wrap. Other required items for completing the in-person labs include
(a) **SAFETY GOGGLES:** Students are required to provide an approved pair of safety goggles in order to be admitted to the laboratory. Approved safety goggles can be purchased from the School Book Store. These goggles meet specifications of the U.S. Occupational Safety and Health Act (OSHA-ANSI287.1-1979) and are approved by the Chemistry Department Safety Committee. Other goggles may be acceptable, but must be approved by the course instructor. *The goggles should be worn in the lab at all times.*

(b) **DISPOSABLE GLOVES:** A box of disposable gloves can be purchased from the School Book Store. Students can share boxes of gloves (that are provided in the lab) as long as the gloves are always available to each student during the appropriate lab period.

(c) **LAB COATS:** Students are required to provide and wear a lab coat for the laboratory. A multi-use disposable Tyvek® lab coat can be purchased from the School Book Store. A cloth lab coat is also acceptable.

**PROPER LABORATORY ATTIRE:** *Long pants (no leggings/spandex) and closed-toe shoes in the laboratory at all times.* Students who come to laboratory wearing shorts, skirts, capri pants or sandals **will not be allowed** to perform for that day.

**ASYNCHRONOUS LAB LECTURES:** Students are required to watch approximately 60 minutes of lecture video (broken into smaller segments) per two-week unit, which can be accessed in Canvas via Kaltura Media Gallery. Lecture content will be posted on Friday evening prior to the start of a new unit. Lecture slides will be posted on Canvas along with the lecture videos. [Thus, *no in-person* lecture meetings will be happening in Loudermann 458 on Tuesdays and Fridays. If in the middle of the semester, if some of the students in the hybrid class would like to have an in-person discussion, we can use the assigned lecture room, Loudermann 458 for that purpose].

**Office hour/discussion time:** TBA (I will send the dates and details via email and be posted in Canvas no later than September 14, Monday, 5 pm CT)

**LABORATORY GRADING:**

1. **Laboratory Report and Notebook (280 points):** Each experiment will be worth a maximum of 40 points and will consist of notebook and the experiment report sheet. A laboratory report consist of three parts [Due dates of each report will be given in details and be posted in Canvas]
   (a) **Pre-Lab report** - (b) **Data & Observations**  (c) **The Post-lab report.** *Note: For determination of the Laboratory Report Score,* the score for the lowest scoring report from eight experiments will be dropped. If you miss any experiment, this lab will automatically be the dropped score.
   - **Lab report (notebook):** An example of a report format is given in Appendix C of the laboratory manual. The point distribution will be as follows:
### Pre-lab

<table>
<thead>
<tr>
<th></th>
<th>10 pts</th>
<th>Must be completed before lab and includes Purpose, Table of Chemicals, Structures and Reactions, a flowchart or an outlined Procedure (present tense)</th>
</tr>
</thead>
</table>

### Data and Observations

<table>
<thead>
<tr>
<th></th>
<th>10 pts</th>
<th>Must be written during lab (3rd person, past passive form)</th>
</tr>
</thead>
</table>

### Post-lab

<table>
<thead>
<tr>
<th></th>
<th>20 pts</th>
<th>Includes yield, purity, calculations, labeling, workup of data, spectra, discussion of results/conclusion</th>
</tr>
</thead>
</table>

### Total

<table>
<thead>
<tr>
<th></th>
<th>40 pts</th>
<th></th>
</tr>
</thead>
</table>

- **Experimental Performance: (in-person)**

  **Preparations:** Each preparation will be judged on the basis of effectiveness of synthesis, general appearance, such as color and crystal form, and proper labeling of the sample. Samples will also be spot checked for accuracy in reporting melting point ranges and yields in the student's report.

  1. **Lab Quizzes (15 points):** At the start of lab, a “5 points” quiz will be given (all students). Note: For determination of the Laboratory Quiz Score, the score for the lowest scoring quiz will be dropped. If you miss a lab, this quiz will automatically be the dropped score.

  2. **Laboratory Conduct/Performance (30 points):** All students will be evaluated on the basis of (a) the student’s understanding of the experiments, (b) the student’s laboratory technique, (c) the neatness of the student’s bench, apparatus set-up, etc., and (d) efficiency in carrying out experiments. The AI will keep a record of each student’s laboratory proficiency and will also take note if the student obeys the rules concerning laboratory safety, closing time, waste disposal, etc.

  3. **For the online class,** an assessment (mastery) report will be given in lieu of performance grades.

  4. **Some additional practice sets/homework.**

**TOTAL POINTS: 325-375**

In the event that more or less assignments are given, the total points will be adjusted.

**LABORATORY REGRADES REQUESTS:** Occasionally, mistakes are made during grading of laboratory reports or quizzes. In such cases, all regrade requests for laboratory experiments should be first directed to your AI. Since the IA does not have the authority to make the requested change, the regrade request will be forwarded to the Laboratory Director (Dr. de la Cruz). A regrade request will include a complete regrade of the report.

**FINAL LABORATORY GRADE CALCULATION:** Final lab scores will be converted to a 100 point scale.
ALL STUDENTS
LABORATORY EVACUATION PLAN: In the rare event requiring evacuation of lab, such as fire or major chemical spill, the following procedure will be followed.

1) The evacuation will be signaled by the fire alarm. This alarm consists of a purposefully obnoxious, repetitive honking sound and flashing lights.
2) Upon hearing the alarm, students should immediately exit the laboratory by the door shown on the diagram below. The student does not have to worry about shutting off electrical equipment; this task is performed by the AI.
3) The AI will designate a student (usually the one closest to the exit) to lead the students to the assembly site. The assembly site for the 2nd floor laboratories is across Throop Drive to the street level of the parking garage (see diagram below).
4) The AI will turn off the main power switch for the laboratory and follow their students out of lab to the assembly site.
5) At the assembly site, remain calm and quite; the AI will take attendance.
6) Wait at the assembly site for further instructions or an “all clear” announcement.