Instructor: Dr. Ogar Ichire
TA: 
Office: Olin 205A 
Phone: 303-871-2985 
Email: ogar.ichire@du.edu 
Office hours: Open door

Lab meets: Mon - Wed 
Lab: Olin 232

Required Materials:
Text: Laboratory Techniques in Organic Chemistry, Fourth Edition 

Students will be required to wear safety goggles and lab coat during lab.
A laboratory notebook (see lab notebook requirements)
Canvas Access (labs and postlabs will be posted to Canvas)

Additional References available: 
https://www.organicdivision.org/links/ Synthetic Organic Chemistry

Course Philosophy: This course is designed according to the educational goals and mission of the University of Denver and the Chemistry Department. The chemistry department’s mission is to develop confident, well-prepared students who can contribute to the society on issues concerning modern chemistry and science. Students are expected to develop strong oral and written communication skills, to engage in critical thinking, to develop excellent laboratory skills, to work on independent and group research projects, and to prepare for careers in industry, academia, and professional areas.

In keeping with this mission this course aims to develop the following skills:
1. Know and use standard lab techniques.
2. Know and use basic analytical tools, techniques, and instrumentations.
3. Use and critically analyze chemical literature.
4. Communicate scientific issues in writing.
5. Apply current chemical theory and content to solving problems.
6. Investigate some applications of organic chemistry.

Organic Chemistry III Lab will meet these goals by:
1. Reinforcing the common techniques and procedures used in organic chemistry I and analytical techniques introduced in organic chemistry II.

2. We will use the chemistry reference materials to identify chemical properties and hazards associated with each chemical that we use and make in the lab. Part of each pre-lab assignment is to gather this information into a table in your lab notebook.

3. Being able to effectively communicate an understand chemical theories in writing is essential to all practicing scientists, and one way to establish these skills is through practice. Therefore, each lab will include a post-lab or lab report assignment which will ask you to effectively communicate your lab results, the interpretation of these results, and to explain the relevant chemical theories applicable to that lab.

Organic Chemistry III Laboratory

For organic chemistry III, we will work on named reactions and a couple of projects. But first, we will learn how to use a common database called SciFinder(n) to obtain primary literature references and to do searches. Typically, a good literature search is a natural first step performed by a chemist before heading to the lab to run any reaction and SciFinder is a key database used by organic chemists. The lab activity on SciFinder will show you how to search for known compounds, reaction procedures, vendors, analytical data, and even research a scientific topic of interest.

Google Scholar is another popular web search engine also used by chemists to explore scholarly literature across many related disciplines, databases, and sources. Though we will not be dwelling on Google Scholar this quarter, it is worth
Your score in the course will be determined using a point system below:

### Areas evaluated:

<table>
<thead>
<tr>
<th>Areas evaluated</th>
<th>Frequency × Points</th>
<th>Total Points in Area</th>
<th>Percentage of Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>SciFinder Activity</td>
<td>80</td>
<td>80</td>
<td>8%</td>
</tr>
<tr>
<td>Pre-lab (Reading summary is worth 10 pts)</td>
<td>2 × 20</td>
<td>40</td>
<td>4%</td>
</tr>
<tr>
<td>Doing the Lab and Lab performance</td>
<td>2 × 40</td>
<td>80</td>
<td>8%</td>
</tr>
<tr>
<td>Post-lab or Reports</td>
<td>2 × 60</td>
<td>240</td>
<td>24%</td>
</tr>
<tr>
<td>Safety Monitor</td>
<td>60</td>
<td>60</td>
<td>6%</td>
</tr>
<tr>
<td><strong>Lab Project</strong></td>
<td>500</td>
<td><strong>500</strong></td>
<td><strong>50%</strong></td>
</tr>
<tr>
<td><strong>Total Points</strong></td>
<td></td>
<td><strong>1000</strong></td>
<td><strong>100%</strong></td>
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</tbody>
</table>

### Grade Range

- **A**: 100 – 94%
- **A-**: 94 – 90%
- **B+**: 90 – 87%
- **B**: 87 – 84%
- **B-**: 84 – 80%
- **C+**: 80 – 77%
- **C**: 77 – 74%
- **C-**: 74 – 70%
- **D+**: 70 – 67%
- **D**: 67 – 64%
- **D-**: 64 – 61%
- **F**: 60 – 0%

**Note**: Final grades and percentage ranges are subject to change by the instructor.
Retain all returned graded coursework until final grades are assigned at the end of the course. Please keep all graded assignments until a final grade has been assigned for the course. It is YOUR RESPONSIBILITY to check for grading errors. Individual scores will be posted on Canvas as soon as they become available.

Laboratory Safety:
The mastery of chemistry requires the student to master laboratory skills and the handling of chemicals with various levels of associated hazards. The University has taken the necessary steps to minimize student risks by equipping chemistry labs with devices that lower student exposure to hazardous chemicals as well as a vibrant set of safety procedures, guidelines and requirements. However, we expect you to embrace and follow all safety procedures outlined in each experiment and to develop safety guidelines for group projects. Failure to comply will result in an automatic zero for that lab and repeated problems can result in an F grade for the course.

Attendance:
Regular attendance is expected. You must be in the lab at the assigned starting time to receive full credit for the lab. There will be no makeup labs.

Academic Integrity:
While I advocate collaborative learning and teamwork, I also firmly believe that everyone should maintain the highest ethical standards. As such, I support and will strictly enforce the Honor Code of the University of Denver. www.du.edu/honorcode.

Labs:

<table>
<thead>
<tr>
<th>Date</th>
<th>Lab</th>
<th>Assignments Due</th>
<th>Reading (techniques book)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wk1</td>
<td>Introduction to Organic chemistry lab Check-in, Safety, SciFinder Activity and Syllabus</td>
<td>SciFinder Activity</td>
<td>Chapter 1</td>
</tr>
<tr>
<td>Wk2</td>
<td>Lab 1 Check-in, SciFinder Activity &amp; Lab Project Assignment</td>
<td>Pre-lab 1 (30 pt) SciFinder Activity</td>
<td>SciFinder and Lab Project</td>
</tr>
<tr>
<td>Wk3</td>
<td>Lab2 Heck Reaction Planning for Lab Project Ordering of chemical</td>
<td>Post-lab1</td>
<td>See Pre-Lab Research papers</td>
</tr>
<tr>
<td>Wk4</td>
<td>Lab 3 Domino Reaction Planning for Lab Project Ordering of chemical</td>
<td>Pre-lab 2 (30 pt) See Pre-Lab Research papers</td>
<td></td>
</tr>
<tr>
<td>Wk5</td>
<td>Projects</td>
<td>Prelab &amp; postlab2</td>
<td>Research papers</td>
</tr>
<tr>
<td>Wk6</td>
<td>Project</td>
<td>prelab</td>
<td>Research papers</td>
</tr>
<tr>
<td>Wk7</td>
<td>Project</td>
<td>prelab</td>
<td>Research papers</td>
</tr>
<tr>
<td>Wk8</td>
<td>Project</td>
<td>prelab</td>
<td>Research papers</td>
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<tr>
<td>Wk9</td>
<td>May 27 Memorial Day Presentation, Report and Checkout</td>
<td>Report</td>
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Project Breakdown:

- Literature Search, Reaction Planning, Experimentation, Report and Presentation
- Research on your topic and experiment.
- Write a summary or overview of your reactions (or write-up a plan, timeline, and chemical supplies for your experiment). Include references and detain reaction schemes.
- Ask yourself the following questions as your plan: What chemicals do I need for my reaction? How do I set up my reaction and obtain the right reaction conditions? What do I need to set up my reaction? Can I do each step of my planned reaction in the fixed 3-hour period? How do I monitor my reaction? How do I work up my reaction? How do I clean and purify my reaction product? How do I analyze my reaction product? How do I deal with the reaction waste?
- Meet with your TA as often as possible during the planning process. Keep each reaction step simple.
- Submit a list of all the required chemicals, solvents and supplies for your project. Obtain the chemicals and other supplies and plan to start the experiments.
- Perform each step of the reaction and obtain major and minor products. Analyze each product and document your data and interpret results.