CHEM 273L Organic Chemistry I Lab
1 credit (CRN 63062)
MWR 1:00-4:50 AM Imiloa 131

INSTRUCTOR: Bradley O. Ashburn, Ph.D.
OFFICE: Imiloa 130
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OFFICE HOURS: MTWRF 11:15 am-12:15 pm
TELEPHONE: 236-9116
EFFECTIVE DATE: Summer 2013

WINDWARD COMMUNITY COLLEGE MISSION STATEMENT

Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai‘i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide O‘ahu’s Ko‘olau region and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment—inspiring students to excellence.

CATALOG DESCRIPTION

Laboratory principles of Organic Chemistry II, the second semester course in organic chemistry intended for science majors. Topics to be covered include techniques, synthesis, qualitative organic analysis and applications of spectroscopy. (4 hours laboratory)
Prerequisites: A grade of ‘C’ or better in CHEM 272L and a grade of ‘C’ or better or registration in CHEM 273 or instructor's consent.
WCC: DY

STUDENT LEARNING OUTCOMES

1. Perform and develop skills in organic chemistry laboratory methods and techniques used in separation and purification.
2. Determine the chemical identity of some organic chemicals through their properties.
3. Keep complete and accurate records, manipulate data for mathematical calculations, including reactant recovery and percent yield.
4. Apply laboratory safety and safety disposal of waste procedure that can be used in all future laboratory experiences.
5. Gain experience in organic synthesis and functional group conversion.
6. Interpret experimental data and formulate conclusions as evidenced in laboratory reports.

LEARNING RESOURCES

Required Textbook: CHEM 273L Lab Manual (Available at WCC Bookstore)
Course Website: http://laulima.hawaii.edu (use UH email account login and password)
Other Requirements: Composition book, safety googles/glasses, scientific calculator and internet access
PURPOSE OF THE LABORATORY COURSE

The chemistry laboratory allows the student to understand some of the theories discussed in the lecture more thoroughly. In the laboratory you will be involved with the processes of scientific inquiry used to discover chemical principles. It is the only way for the student to learn the techniques that are so important in research and in most laboratories. The student will discover that doing quality work in the laboratory requires a great deal of patience and care.

GRADING

1. Grades will be based on the following:
   - Pre-Lab Assignments (six)--------- 60 points
   - Lab Reports (six)--------------------- 60 points
   - Unknown Analyses (three)--------- 90 points
   - Final Exam -------------------------- 100 points
   - Lab Technique----------------------- 90 points
   - Total----------------------------------- 400 points

   Course grades will be assigned as follows:
   - A  360-400 points   90-100%
   - B  320-359 points   80-89%
   - C  280-319 points   70-79%
   - D  240-279 points   60-69%
   - F  239 points or below  59% or below

   The other grades I, W, Cr, NC to be assigned are described in the current college catalog.

2. Pre-lab Assignments - The purpose of the pre-labs are to think critically about the experiment you are about to perform including the techniques, chemical reagents, safety hazards, and reaction mechanisms involved.

3. Lab Reports - The laboratory reports will be evaluated based on completeness, clarity and depth. Details will be discussed during the first class meeting.

4. Lab Technique/Professionalism - Students will be assessed based on the proper handling of chemicals, professional behavior during lab sessions, proper carry out of experimental procedures, adherence to safety rules, and preparedness for each lab session.

5. Unknown Analyses - Students will be given three unknown compounds in which they must determine the structure. Details will be discussed during the first class meeting.

6. The final exam will cover all topics from the experiments performed in lab including but not limited to, chemistry involved, reaction mechanism, and explanation of organic laboratory techniques and principles (ie recrystallization, distillation, TLC, etc).
MODE OF INSTRUCTION

Lecture/Laboratory: Brief pre-lab lectures will be delivered by a variety of methods and include topics such as reaction mechanisms, safety concerns, proper equipment setup, and explanation of lab techniques and procedures.

COURSE POLICIES

1. The topics and exam schedule are found in the Course Schedule on the last page.

3. There will be no make-up for the final exam.

4. There will be no make-up for any lab experiment. Missing a lab session will result in a reduction of the lab technique grade of 15 points per missed session.

5. Disruptive behavior leads to loss of learning time. Examples are activated beepers and cell phones, making offensive remarks, eating or drinking in the classroom, packing of books, making noise, leaving class early, sleeping in class, prolonged chattering, reading other materials not relevant to this class, etc. If a student takes part in disruptive behavior, the instructor reserves the right to exclude immediately the student from that class meeting.

6. If you have any special learning needs, including hearing/visual impairment, please inform the instructor as soon as possible.

7. An "F" will be assigned to students involved in cheating systems.

8. Any class announcement pertaining to changes in schedule will be made at least a week prior to the affected date. However, you are responsible for knowing these changes, whether or not you were in class for the announcement. If you were late or missed class please borrow notes from your classmate.

DISABILITIES ACCOMMODATION

If you have a physical, sensory, health, cognitive, or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Disability Specialist Counselor to discuss reasonable accommodations that will help you succeed in this class. Ann Lemke can be reached at 235-7448, lemke@hawaii.edu, or you may stop by Hale ‘Akoakoa 213 for more information.
## COURSE CONTENT AND SCHEDULE

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<thead>
<tr>
<th>Week</th>
<th>Day</th>
<th>Experiment Title</th>
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<tr>
<td>1</td>
<td>Monday, 7/8</td>
<td>Lab Check In and Course Description</td>
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<tr>
<td>1</td>
<td>Wednesday, 7/10</td>
<td><strong>Experiment 1:</strong> The Diels Alder Reaction</td>
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<td>1</td>
<td>Thursday, 7/11</td>
<td><strong>Experiment 2:</strong> The Friedel Crafts Reaction</td>
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<tr>
<td>2</td>
<td>Monday, 7/15</td>
<td>Unknown Analysis I</td>
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<td>2</td>
<td>Wednesday, 7/17</td>
<td>Unknown Analysis I</td>
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<td>2</td>
<td>Thursday, 7/18</td>
<td>Unknown Analysis I</td>
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<tr>
<td>3</td>
<td>Monday, 7/22</td>
<td><strong>Experiment 3:</strong> Bioenzymatic Green Chemistry Reduction</td>
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<td>Wednesday, 7/24</td>
<td><strong>Experiment 4:</strong> Synthesis of Banana Oil</td>
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<td>3</td>
<td>Thursday, 7/25</td>
<td>Unknown Analysis II</td>
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<td>Monday, 7/29</td>
<td>Unknown Analysis II</td>
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<td>4</td>
<td>Wednesday, 7/31</td>
<td>Unknown Analysis II</td>
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<td>4</td>
<td>Thursday, 8/1</td>
<td><strong>Experiment 5:</strong> The Wittig Reaction</td>
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<td><strong>Experiment 6:</strong> The Aldol Reaction</td>
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<td>Unknown Analysis III</td>
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<td>5</td>
<td>Thursday, 8/8</td>
<td>Unknown Analysis III</td>
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<td>6</td>
<td>Monday, 8/12</td>
<td>Unknown Analysis III</td>
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<td>6</td>
<td>Wednesday, 8/14</td>
<td>Clean up and Lab Check Out</td>
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<td>6</td>
<td>Thursday, 8/15</td>
<td>Final Exam</td>
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