CHEM 272 Organic Chemistry I
3 credits (CRN 62002)
MTWRF 10:30 AM-11:45 AM Imiloa 111

INSTRUCTOR: Bradley O. Ashburn, Ph.D.
OFFICE: Imiloa 130
E-MAIL: bashburn@hawaii.edu
OFFICE HOURS: MTWRF 9:30-10:30 am
TELEPHONE: 236-9116
EFFECTIVE DATE: Summer 2011

WINDWARD COMMUNITY COLLEGE MISSION STATEMENT

Windward Community College is committed to excellence in the liberal arts and career development; we support and challenge individuals to develop skills, fulfill their potential, enrich their lives, and become contributing, culturally aware members of our community.

CATALOG DESCRIPTION

This is the first semester course in organic chemistry intended for science majors. Topics to be covered include structure, properties, nomenclature, reactions, reaction mechanisms, stereochemistry and spectroscopy of alkanes, alkenes, alkynes, alkyl halides, alcohols and their applications to biology. (3 hours lecture)
Prerequisites: A grade of 'C' or better in CHEM 162 or instructor's consent.
WCC: DP

STUDENT LEARNING OUTCOMES

1. Discuss the bonding and structure of organic compounds
2. Name various organic compounds using the IUPAC rules and diagram their structures
3. Use stereochemical concepts in understanding physical and chemical properties
4. Identify chemical structure based on spectroscopic data.
5. Explain the relationship between structure and physical and chemical properties
6. Predict reaction products, deduce starting materials and diagram reaction mechanisms.
7. Cite applications and the important role of organic reactions in biology.

COURSE OBJECTIVES

This course will:
1. provide the student with the fundamental knowledge and concepts in relating chemical bonding, structure, properties and reactions of organic compounds.
2. provide the student with the knowledge and methods used in identifying organic compounds
3. promote greater student appreciation of the logic of organic chemistry and awareness of the role of organic chemistry in biology and the real world.
MODE OF INSTRUCTION

Lecture/Discussion: Lectures will be delivered by a variety of methods and include in-class group activities.

GRADING

1. Grades will be based on quizzes, exams and a cumulative final exam.
   
   - Quizzes (ten)------------------------------- 100 points
   - Exam 1---------------------------------- 100 points
   - Exam 2---------------------------------- 100 points
   - Final Exam----------------------------- 200 points
   - Total---------------------------------- 500 points

   Course grades will be assigned as follows:
   A  450-500 points  90-100%
   B  400-449 points  80-89%
   C  350-399 points  70-79%
   D  300-349 points  60-69%
   F  299 points or below  59% or below

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

2. Ten short quizzes (closed notes/text) will be given randomly throughout the course.

3. There will be two exams, each of which will cover approximately one-third of the course. Each will last for 75 minutes.

4. The final exam will cover all topics from the beginning with special emphasis on topics covered after the second exam. The final exam (cumulative) will be 75 minutes.

COURSE TASKS

• Quizzes
• Exams
• Cumulative Final exam

LEARNING RESOURCES

ISBN: 978-0-07-337562-5; Publisher McGraw-Hill

Course Website: http://laulima.hawaii.edu (use UH email account login and password)

Recommended “Student Study Guide/Solutions Manual” by J.G. Smith

Prentice Hall Molecular Model Kit For Organic Chemistry
OTHER INFORMATION

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

2. **Missed Quizzes.** If you are **absent**, the quiz you missed will be counted as **zero**. If you know in advance that you will be **absent** from class, you may notify the instructor to take it in **advance** at the Learning Center.

3. **Missed Exam.** There are **no make up exams** except in the case of a documented medical emergency. There will be **no make-up** for the final exam.

4. **Make-ups.** Exams and quizzes **cannot** be retaken to obtain better grades.

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 a 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.
CHAPTER READING AND PRACTICE PROBLEMS

Chapter 1: Structure and Bonding
Reading: 1.1-1.13
Practice Problems: 1.1-87

Chapter 2: Acids and Bases
Reading: 2.1-2.8
Practice Problems: 2.1-69

Chapter 3: Introduction to Organic Molecules and Functional Groups
Reading: 3.1-3.4
Practice Problems: 3.1-12, 19-34, 41, 42

Chapter 4: Alkanes
Reading: 4.1-4.5, 4.8-4.13
Practice Problems: 4.1-31, 36-68

Chapter 5: Stereochemistry
Reading: 5.2-5.13
Practice Problems: 5.2-28, 34-63, 66-68

Chapter 6: Understanding Organic Reactions
Reading: 6.1-6.13, 6.5-6.10
Practice Problems: 6.1-4, 9-31, 38-54

Chapter 7: Alkyl Halides and Nucleophilic Substitution
Reading: 7.1-7.19
Practice Problems: 7.1-83

Chapter 8: Alkyl Halides and Elimination Reactions
Reading: 8.1-8.11
Practice Problems: 8.1-64

Chapter 9: Alcohols, Ethers, and Epoxides
Reading: 9.1-9.15
Practice Problems: 9.1-79

Chapter 10: Alkenes
Reading: 10.1-10.4, 10.7-10.18
Practice Problems: 1-10, 13-46, 52-75

Chapter 11: Alkynes
Reading: 11.1-11.12
Practice Problems: 11.1-66

Chapter 12: Oxidation and Reduction
Reading: 12.1-12.13
Practice Problems: 1-26, 32-53, 63-73
<table>
<thead>
<tr>
<th>Week</th>
<th>Day</th>
<th>Chapters</th>
<th>Material Covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Monday, 5/23</td>
<td>Chp 1</td>
<td>Structure and Bonding</td>
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<tr>
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<td>Tuesday, 5/24</td>
<td>Chp 1</td>
<td>Structure and Bonding</td>
</tr>
<tr>
<td>1</td>
<td>Wednesday, 5/25</td>
<td>Chp 2</td>
<td>Acids and Bases</td>
</tr>
<tr>
<td>1</td>
<td>Thursday, 5/26</td>
<td>Chp 3</td>
<td>Organic Molecules and Functional Groups</td>
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<tr>
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<td>Friday, 5/27</td>
<td>Chp 4</td>
<td>Alkanes</td>
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<td>Memorial Day Holiday</td>
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<tr>
<td>2</td>
<td>Tuesday, 5/31</td>
<td>Chp 4</td>
<td>Alkanes</td>
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<td>Chps 1-4</td>
<td>EXAM 1</td>
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<tr>
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<td>Thursday, 6/2</td>
<td>Chp 5</td>
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<td>Friday, 6/3</td>
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<td>Stereochemistry</td>
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<tr>
<td>3</td>
<td>Monday, 6/6</td>
<td>Chp 6</td>
<td>Understanding Organic Reactions</td>
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<td>3</td>
<td>Tuesday, 6/7</td>
<td>Chp 7</td>
<td>Alkyl Halides and Nucleophilic Substitution</td>
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<td>3</td>
<td>Wednesday, 6/8</td>
<td>Chp 7</td>
<td>Alkyl Halides and Nucleophilic Substitution</td>
</tr>
</tbody>
</table>
| 3    | Thursday, 6/9    | Chp 7 / Chp 8 | Alkyl Halides and Nucleophilic Substitution  
|      |                  |          | Alkyl Halides and Elimination Reactions |
| 3    | Friday, 6/10     |          | King Kamehameha Day Holiday               |
| 4    | Monday, 6/13     | Chp 8    | Alkyl Halides and Elimination Reactions   |
| 4    | Tuesday, 6/14    | Chp 8    | Alkyl Halides and Elimination Reactions   |
| 4    | Wednesday, 6/15  | Chps 5-8 | EXAM 2                                   |
| 4    | Thursday, 6/16   | Chp 9    | Alcohols, Ethers, and Epoxides           |
| 4    | Friday, 6/17     | Chp 9    | Alcohols, Ethers, and Epoxides           |
| 5    | Monday, 6/20     | Chp 9    | Alcohols, Ethers, and Epoxides           |
| 5    | Tuesday, 6/21    | Chp 10   | Alkenes                                  |
| 5    | Wednesday, 6/22  | Chp 10   | Alkenes                                  |
| 5    | Thursday, 6/23   | Chp 10 / Chp 11 | Alkenes  
<p>|      |                  |          | Alkynes                                  |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
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<td>Chp 11</td>
<td>Alkynes</td>
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<td>Tuesday, 6/28</td>
<td>Chp 12</td>
<td>Oxidation and Reduction</td>
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<td>Chp 12</td>
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<tr>
<td>6</td>
<td>Friday, 7/1</td>
<td>Chps 1-12</td>
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*Assignment/exam calendars may be changed due to institutional, weather or class problems.*