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Elementary Organic & Biological Chemistry, BCH3023

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Instructor Contact Info

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Email/phone messages: students can expect a response within 24 hrs. M-F and within 72 hrs. on weekends. **My preferred way of communicating with students is using email.** I check my UF email frequently every day and on the weekends. If I plan to be out of the office or out of email communication, I will email the class and post an announcement on the class website.

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Course (catalog) description

Elementary organic chemistry and biochemistry for students in the agricultural technical curricula. This is a terminal course and not part of any sequence.

Course Overview

This course is intended for students who have taken and understand the principles of general chemistry and have chosen not to take one of the regular sequences in organic and biological chemistry. This is a terminal course and is not part of any sequences of courses in the Department of Chemistry. This course is designed to introduce elementary organic chemistry and biochemistry to students in the agricultural curricula.

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Required Reading

K.J. Denniston, J.J. Topping, and R.L. Caret. 2007. General, Organic, and Biochemistry, 6th edition. Mc Graw Hill Co.

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Course Prerequisites

CHM 2046 or CHM 2047

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Acceptable Course Participation

Students are expected each week (see [schedule](#)) to complete the reading assignment, watch the narrated lecture and work on the assignment related to the lecture (see [course goals and assignments](#) & [assessment](#)). [\[Top\]](#)

Course Goals and Assignments

The objectives of this course are to provide sufficient background biological chemistry to make subsequent courses in plant science more meaningful. Upon successful completion of this course, students will be able to: 1) identify relevant organic and biochemical compounds and 2) identify relevant organic and biochemical reactions.

This course is divided into four modules with three lectures. Each week students will have a reading assignment, a narrated lecture, and an assignment (quiz or discussion)(see [schedule](#) attachment under the syllabus tab). Students should read the textbook and then review the online lecture. After the student has completed the lecture, they should complete the assignment for the week. Assignments must be completed by the date on the schedule to receive full credit. Assignments will be accepted up to four days after the due date but will be marked down five points.

There are twelve assignments (either quiz or discussion) – each worth 10 pts. I will drop the two lowest grades. You also have a mid-term and final exam each worth 100 pts.

Grades for all assignments will be posted seven days after the student turns them in. If the instructor cannot return the assignment within this time frame, the instructor will notify the student as to when the assignment will be graded. ([see total points and grades](#))

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Assessment

See [schedule](#) for dates. The week begins on Monday and ends on Sunday. All discussions or assignments need to be completed by the end of each week (Sunday 5 pm, Eastern time zone). The accepted format for all assignments is MS Word files. If there is a malfunction with the class site or computer malfunctions occur, assignments may be emailed or sent via fax. It is the obligation of the student to inform me of such malfunctions immediately. See [Late Assignment Policy](#)

[Module 1](#) – *General Chemistry Saturated Hydrocarbons, Unsaturated Hydrocarbons (lectures 1, 2, and 3*

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- interpret general chemical terminology
- compare different types of chemical bonds
- compare common chemical reaction
- compare and contrast organic and inorganic compounds
- illustrate the importance of carbon
- compare and contrast saturated and unsaturated hydrocarbons
- list proper chemical names for compounds
- compare and contrast physical and chemical properties of alkanes, alkenes, and alkynes

Module 2 – *Alcohols, Phenol, Thiols, Ethers, Aldehydes, Ketones and Carboxylic Acids lectures 4, 5 and 6)*

- compare and contrast physical (boiling and melting points) of alcohols, aldehydes, ketones and carboxylic acids (and their derivatives)
- identify important aldehydes, ketones and carboxylic acids
- properly name alcohols, aldehydes, ketones, and carboxylic acids (and their derivatives)
- compare and contrast the difference between aldehydes and ketones
- explain how soap works
- defend the importance of oxidation and reduction reactions
- describe how simple organic molecules can be modified into more complex molecules which are precursors to important biological molecules
- compare chemical reactions involving alcohols, aldehydes, ketones, and carboxylic acids

Module 3 – *Carbohydrates, Lipids, Amines and Amides (lectures 7, 8, and 9)*

- identify common and important monosaccharides and disaccharides
- distinguish the difference among amylase, amylopectin, glycogen, and cellulose
- describe the general products from the 3 phases of respiration of simple sugars
- describe the two processes related to chemiosmotic theory
- compare fatty acids based on physical properties
- identify important glycerides, nonglycerides, and complex lipids
- compare the amount in energy released from the breakdown on simple sugars versus lipids
- compare and contrast amines and amides (as well as the properties of amines and amides; names, and preparation)
- identify important amines and amides

Module 4 – *Proteins Enzymes, DNA/RNA (lectures 10, 11, and 12)*

- classify amino acids into four different groups
- explain the significance of protein structure on protein function

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- describe the forces that maintain the primary, secondary, tertiary and quaternary structures of proteins
- describe the effects of temperature and pH on protein structure and function
- classify enzymes based on their function
- describe the effect of substrate concentration on enzyme reactions
- compare the lock and key model versus the induced fit model
- describe the roles of cofactors and coenzymes
- describe enzyme regulation and inhibition mechanisms
- compare and contrast DNA and RNA
- describe DNA replication
- define transcription and translation
- list the functions of the three types of RNA
- describe mutations to DNA

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TOTAL POSSIBLE POINTS & GRADES = 300 pts.

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Percentage of Points

94-100	A	(282-300 points)
90-93	A-	(270-281 points)
86-89	B+	(258-269 points)
83-85	B	(249-257 points)
80-82	B-	(240-248 points)
76-79	C+	(228-239 points)
74-75	C	(222-227 points)
70-72	C-	(210-221 points)
66-69	D+	(198-209 points)
63-65	D	(189-197 points)
60-62	D-	(180-188 points)
59-below	E	(0-179 points)

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Learning Community Overview

1. Consider yourself a member of a community. A community is a group of individuals who work together to support a common goal or interest.
2. Treat all contributions made by other members with respect
3. Keep an open mind

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4. Ask for help when you need it
5. Assist others when possible
6. Have patience with the technology
7. Respect diverse opinions and viewpoints of each member in the community
8. Contribute regularly
9. All postings shared within this community should reflect acceptable content standards. You are expected to use discretion and if asked you will be expected to demonstrate how your content supports the focus of this community.
10. Student participation on a weekly basis is an essential aspect of the online course process. All students are expected to do the work assigned, notify the instructor when emergencies arise, and make up missing assignments no later than four days after they are due.
11. If at any time, you feel that any of these ground rules have been violated by a member of our community, you are encouraged to bring your concern directly and immediately to the instructor.

Modified 4-25-2010 from www.learningwithoutwalls.com

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Netiquette & Chat Expectations

Netiquette (short for "network etiquette" or "Internet etiquette") is a set of social conventions that facilitate interaction over networks, ranging from Usenet and mailing lists to blogs and forums (as defined by Wikipedia).

Adapted from Rules of Netiquette (<http://www.albion.com/netiquette/corerules.html>)

1. Remember the human and never forget that the person reading your mail or posting is, indeed, a person, with feelings that can be hurt.
- 2: Adhere to the same standards of behavior online that you follow in real life
- 3: Know where you are in cyberspace
- 4: Respect other people's time and bandwidth
- 5: Make yourself look good online. Check grammar and spelling before you post; Know what you're talking about and make sense; Do not post flame-bait.
- 6: Share expert knowledge
- 7: Help keep flame wars under control. Flame is a personal attack. It is possible to disagree without attacking the person. Use emoticons and acronyms to convey emotion to avoid misunderstanding
- 8: Respect other people's privacy
- 9: Don't abuse your power
- 10: Be forgiving on other people's mistakes

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Absences and Make-Up Work

Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

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Academic Honesty

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: ***"We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."*** You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: ***"On my honor, I have neither given nor received unauthorized aid in doing this assignment."***

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/SCCR/honorcodes/honorcode.php>.

Software Use

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu/cwc/*

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Counseling Services
Groups and Workshops
Outreach and Consultation
Self-Help Library
Training Programs
Community Provider Database

- *Career Resource Center*, First Floor JWRU, 392-1601, www.crc.ufl.edu/

Services for Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation

0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/

Distance Courses

Each online distance learning program has a process for, and will make every attempt to resolve, student complaints within its academic and administrative departments at the program level. See <http://distance.ufl.edu/student-complaints> for more details.

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Tentative Schedule – BCH 3023

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Week of	Topic and Assignments	Due Date – 5 pm Eastern Time
Module 1 [Top]		
<i>Aug 22</i>	<i>Introduction</i>	
	Introduction	Discussion - Self Introduction (Aug 27)

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Week of	Topic and Assignments	Due Date – 5 pm Eastern Time
<i>Aug 28</i>	<i>General Chemistry Review</i>	
	Reading – Chapter's 3, 7,8	
	Lecture 1 – narrated Power Point	Quiz 1 (Sep 3)
<i>Sep 4</i>	<i>The Saturated Hydrocarbons</i>	
	Reading – Chapter 10	
	Lecture 2 – narrated Power Point	Discussion 1 (Sep 10)
<i>Sep 11</i>	<i>Unsaturated Hyrdocarbons</i>	
	Reading – Chapter 11	
	Lecture 3 – narrated Power Point	Quiz 2 (Sep 17)
Module 2		
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<i>Sep 18</i>	<i>Alcohols, Phenols, Thiols, and Ethers</i>	
	Reading – Chapter 12	
	Lecture 4 -narrated Power Point	Quiz 3 (Sep 24)
<i>Sep 25</i>	<i>Aldehydes and Ketones</i>	
	Reading – Chapter 13	
	Lecture 5 – narrated Power Point	Discussion 2 (Oct 1)
<i>Oct 2</i>	<i>Carboxylic Acids</i>	
	Reading – Chapter 16	
	Lecture 6– narrated Power Point	Discussion 3 (Oct 8)
<u>OCTOBER 9</u>	<u>MIDTERM EXAM (LEC 1-6)</u>	Oct 9-15

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Week of	Topic and Assignments	Due Date – 5 pm Eastern Time
Module 3 [Top]		
<i>Oct 16</i>	<i>Carbohydrates</i>	
	Reading – Chapter 14	
	Lecture 7 – narrated Power Point	Quiz 4 (Oct 22)
<i>Oct 23</i>	<i>Lipids</i>	
	Reading – Chapter 17	
	Lecture 8 – narrated Power Point	Discussion 4 (Oct 27)
<i>Oct 30</i>	<i>Amines and Amides</i>	
	Reading Chapter 15	
	Lecture 9 – narrated Power Point	Discussion 5 (Nov 5)
Module 4 [Top]		
<i>Nov 6</i>	<i>Proteins</i>	
	Read – Chapter 18	
	Lecture 10 – narrated Power Point	Discussion 6 (Nov 12)
<i>Nov 13</i>	<i>Enzymes</i>	
	Reading Chapter 19	
	Lecture 11 – narrated Power Point	Quiz 5 (Nov 19)
<i>Nov 20</i>	<i>Thanksgiving Break – No class</i>	
<i>Nov 27</i>	<i>DNA/RNA</i>	
	Reading Chapter 20	
	Lecture 12 – narrated Power Point	Discussion 7 (Dec 3)

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Week of	Topic and Assignments	Due Date – 5 pm Eastern Time
<i>Dec 4</i>	<i>Review</i>	
<u>DECEMBER 11</u>	<u>FINAL EXAM</u>	Dec 4-13