Introduction to Organic and Biochemistry (CHEM 2450)
Syllabus, CRNs: 33005, 33006
Spring 2021

Instructor
Dr. Tori Dunlap
128 Manion Hall Annex
Phone: 501-450-5938
Email: vdunlap@uca.edu

Office Hours
MWF 10 – 11am via Zoom
- Zoom link is posted in the classwork tab of google classroom and here: https://uca-edu.zoom.us/j/88010171643

Appointments are also available.
Email for an appointment.

Class Meeting Time
This class will take place online in Google Classroom. Lectures, labs and course content are provided at classroom.google.com, class code: dckvq4f
Three topics of material will be posted each week, similar to a standard MWF class.
Lectures are pre-recorded videos, and office hours are held during our regularly scheduled class time.

Course Description and Prerequisites
CHEM 2450 is the second of a two-part course designed for students interested in a health science profession. This course covers topics in organic and biochemistry as they relate to the health science profession. Students should leave this course with a general knowledge of biological chemistry and how it applies to the health science field. CHEM 2450 has a pre-requisite of a grade of C or better in CHEM 1402.

Course Materials
1. **Text:** Fundamentals of General, Organic, and Biological Chemistry, 8th Edition (2017), J. McMurry, M. Castellion, and D. Ballantine. ISBN: 9780134015187

   We will be utilizing the textbook extensively; it is a required material. You may purchase/rent the ebook if you wish as a more cost-effective option.
2. **Chem101 Online Activation Code**: We will be making use of this online practice platform. It is one of the cheapest but also best because it is very specific for chemistry. It can be used on a computer or any mobile device. The mobile platform is actually pretty impressive
   Once you have purchased the activation code (from the UCA bookstore or the Chem101 website), you will create an account on the Chem101 website (https://www.101edu.co/) and enter the class code: ZB2S5X).
3. **Reliable Internet**. As this class is online, you will have to have a reliable internet connection to access all the materials necessary.
4. **The ability to photograph or scan.** For some assignments you will be required to upload pictures or scans of your handwritten work to a document to be turned in. Alternatively, if you have a tablet or phone with a stylus of some sort, you can likely draw/write your work on your phone/tablet and upload it to the document.
5. **Calculator:** It does not have to be a graphing calculator but it should have logarithm and scientific notation functions. You should know how to use your calculator.

Course Objectives

Successful completion of this course means that, by the end of the course, you will be able **utilize organic chemistry structures, properties, and reactions to describe and analyze biomolecular structures and functions in physiological processes**. This equates to your ability to execute the three objectives listed below.

1. For each organic functional group:
    - Recognize, draw, and name molecules with the functional group
    - Explain the physical properties of the functional group
    - Predict biologically relevant reactions involving the functional group
2. Describe the structure, function, and regulation of each class of biomolecule.
3. Describe the reactions, purpose, outcomes, regulation, and interrelatedness of energy metabolism pathways.

I know these objectives likely do not mean much to you as you read this for the first time, but keep them in mind and refer back to them throughout the course (especially before each exam) to ensure that you are aiming for the right goals.

Weekly Content and Assignments

Each week you will be presented with new course content and assignments. All material will be posted on Friday before at 4pm. While content is presented as three blocks a week, one for each Monday, Wednesday, and Friday, you are welcome to view and study the content whenever you like. I encourage you to keep up with the material as there will be graded assignments due each week.

1. Introduction video and document

Each week there will be a brief video that introduces the topics and objectives for the week as well as the week's assignments and due dates. I will also provide a document with this information.

2. MWF Content

For each Monday, Wednesday, and Friday material on a given topic will be presented.

Textbook Reading: I recommend you do the textbook reading first to understand the bulk of the content. With the textbook reading I will provide numbers of chapter problems for you to do that align with the day's topics and will help you test your understanding.

Lecture Video: Each day I will post a lecture video that extends and/or clarifies the textbook reading. Within the lecture I will also provide you will example problems to work to further your understanding.

Chem101 Assignment: Each day of content will also have a short Chem101 assignment worth one participation point for the entire assignment. You get the participation point just for doing the assignment, regardless of the answers you get correct. This assignment is designed for you to test your knowledge of the day's topics. Each problem can be completed as many times as you need.

3. Discussion Board Post

Each week I will create a new post in our Google Classroom Stream for discussion. Here you can ask questions and/or provide answers for your classmates. I will also monitor this discussion and provide

answers when classmates do not. You may post and answer as many questions and answers as you like, but you are required to post one question OR answer each week to earn a participation point.

4. **Lab**
   As this course is fully online, labs will look a bit different than you might be used to for a science class. We will have two experiment labs, one at the beginning of the semester and one at the end of the semester, where you will watch a video of someone performing an experiment then answer questions about the experiment in google classroom. The remainder of the labs will be online worksheets designed to provide you with more practice for more challenging concepts. We will not meet during your lab time (except for online exams), however I encourage you to utilize office hours to ask questions about labs. These labs will be graded for content. Finally, your normal lab time (M 12 – 1:50pm for CRN 33005, M 2 – 3:50pm for CRN 33006) will be utilized for your four online exams.

5. **Chem101 Homework Assignment**
   Each week you will complete an online Chem101 homework assignment covering the week's material that will be graded for accuracy.

6. **Weekly Review and Reflection**
   Similar to the introduction video, the weekly review will remind you of the overall topics and objectives covered during the week and will ask a few questions to help you review your understanding of the week's material.

The labs, Chem101 daily assignments, discussion board participation, and Chem101 homework assignments will all be due **Monday at 11:59pm** the week after content begins. For example: Week 2 begins January 25th. Week 2 content will post at 4 pm, Friday, January 22, and week 2 assignments will be due Monday, February 1st at 11:59pm. Please keep in mind that the total of a day's content is likely to take you more than 50 minutes (standard lecture time) to complete. For an average course, you should be committing 1-3 hours of time outside of lecture time to homework and studying. This is a four-credit hour course. So, all of the time you spend on this course (lecture, book reading, assignments, studying, lab) should take about 12 hours/week.

Assessments

Ultimately, the goals of this course are for you to have a basic understanding of organic chemistry and apply it to biochemistry. These goals are delineated in the course objectives, and your ability to complete these objectives will be determined by course assessments. These assessments will be self-guided and ungraded (chapter problems, lecture problems), participation (daily Chem101 assignments, weekly discussion board), and graded (weekly Chem101 homework, labs, exams).

Missed Exams

A missed exam will be made up at my discretion. If you miss an exam for a **valid and significant reason**, and you contact me **before** the scheduled exam, then we can discuss the possibilities of a make-up exam. If you contact me after the exam, no make-up will be given. I strongly suggest that you make every effort to take your exams on time.

Attendance and Class Participation Policy

Attendance will be taken by participation in daily Chem101 assignments and the weekly discussion post. You are advised to read and view all textbook readings and lectures since this material will be included in assignments and exams. If you do not show evidence of attendance by joining our google classroom in the first five business days you will be dropped for non-attendance.

Grading

		Total points
4 Exams (50 - 125 points each)	= 400 points	
1 Final exam (comprehensive)	= 150 points	= 920 points
14 Homework Assignments (10 points each)	= 140 points	**Grading Scale**
9 labs (20 points each)	= 180 points	A: 90 – 100%
Participation Activities (1 point each)	= 50 points	B: 80 – 89%

C: 70 – 79%
D: 60 – 69%
F: <60%

Class Schedule

This is a tentative schedule-all dates and content are subject to change

Week	Week of	Content Topic	Lab Assignment
Week 1	Jan 18	**Mon. Jan. 18: MLK Jr. Day – No content** The language of Organic Chemistry: Alkanes, functional groups and nomenclature	Technical Literacy* Lewis Structures
Week 2	Jan 25	The language of Organic Chemistry: Alkanes, functional groups and nomenclature	Alkane Isomers
Week 3	Feb 1	Day 1: End of nomenclature Days 2 and 3: Hydrocarbons	No lab
Week 4	Feb 8	O, S, X Compounds Amines	**Exam 1:** Weeks 1, 2, and day 1 of week 3
Week 5	Feb 15	Aldehydes and Ketones Carboxylic Acids and Derivatives	Hydrogen Bonding
Week 6	Feb 22	Carboxylic Acids and Derivatives (cont.)	Organic Reactions
Week 7	Mar 1	Carbohydrates	**Exam 2:** Days 2 and 3 of week 3, weeks 4 – 6
Week 8	Mar 8	Lipids	Carbohydrate Lab
Week 9	Mar 15	Proteins	Protein Lab
	Mar 22	**Spring Break**	
Week 10	Mar 29	Enzymes	Enzyme Lab
Week 11	Apr 5	Biochemical Energy	**Exam 3:** Weeks 7 – 10
Week 12	Apr 12	Carbohydrate Metabolism	No lab
Week 13	Apr 19	Lipid Metabolism	Organic Scavenger Hunt
Week 14	Apr 26	Review **Dec 4: Study Day – No content**	**Exam 4:** Weeks 11 – 13
	May 3	Final exam: 8 – 10am, Monday May 3	

*** This lab is due Friday, Jan. 22. All other labs (except exams) are due Monday of the following week.**

University Academic Policies

Academic Integrity

The University of Central Arkansas affirms its commitment to academic integrity and expects all members of the university community to accept shared responsibility for maintaining academic integrity. Students in this course are subject to the provisions of the university's Academic Integrity Policy, approved by the Board of Trustees as Board Policy No. 709 on February 10, 2010, and published in the *Student Handbook*. Penalties for academic misconduct in this course may include a failing grade on an assignment, a failing grade in the course, or any other course-related sanction the instructor determines to be appropriate. Continued enrollment in this course affirms a student's acceptance of this university policy.

Disabilities Statement

The University of Central Arkansas adheres to the requirements of the Americans with Disabilities Act. If you need an accommodation under this Act due to a disability, please contact the UCA Disability Resource Center, 450-3613.

Building Emergency Plan

An Emergency Procedures Summary (EPS) for the building in which this class is held will be discussed during the first week of this course. EPS documents for most buildings on campus are available at http://uca.edu/mysafety/bep/. Every student should be familiar with emergency procedures for any campus building in which he/she spends time for classes or other purposes.

Title IX Disclosure

If a student discloses an act of sexual harassment, discrimination, assault, or other sexual misconduct to a faculty member (as it relates to "student-on-student" or "employee-on-student"), the faculty member cannot maintain complete confidentiality and is required to report the act and may be required to reveal the names of the parties involved. Any allegations made by a student may or may not trigger an investigation. Each situation differs, and the obligation to conduct an investigation will depend on the specific set of circumstances. The determination to conduct an investigation will be made by the Title IX Coordinator. For further information, please visit: https://uca.edu/titleix. **Disclosure of sexual misconduct by a third party who is not a student and/or employee is also required if the misconduct occurs when the third party is a participant in a university-sponsored program, event, or activity*

Face Coverings

All students are expected to comply with the University policy regarding face coverings (see https://uca.edu/coronavirus/students/).

Student Handbook Policies

You are encouraged to familiarize yourself with student policies described in the student handbook. In particular, carefully read and understand those policies pertaining to academic issues and sexual harrassment.

Course Evaluations

Evaluations are kept completely confidential. Your thoughtful feedback is highly valued and cannot negatively or positively affect your course grade. Over the years this information has changed and improved the instruction of this course. Student evaluations of a course and its professor are a crucial element in helping faculty achieve excellence in the classroom and the institution in demonstrating that students are gaining knowledge. Students may evaluate courses they are taking starting on the Monday of the thirteenth week of instruction through the end of finals week by logging in to myUCA and clicking on the Course Evaluations Task.

Student handbook

Manion Hall building emergency plan