

**Course Syllabus**  
**Biochemistry I /CHEM 4320**  
**Spring 2017**

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**Instructor:** Lori Isom                      **Office Hours:** M, W 9:00-10:00am  
**Office:** 201D, Laney-Manion                      T, R 9:15-10:30am  
**Phone:** 450-5794  
**Email:** lori@uca.edu  
**Web Site:** <http://faculty.uca.edu/lorii/home.html>

**Class Times:**

Lecture:            T, Th 8:00-9:15am (Laney-Manion 102)

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**Course Description and Objectives:**

This course is designed to be an intensive study of the important concepts in biochemistry today. The beginning of the course will be devoted to a study of the structure and function of proteins, nucleic acids, lipids, enzymes, and carbohydrates. The second portion of the course will discuss the processing of information in cellular systems and the production of energy and biomolecule synthesis through examination of specific metabolic pathways.

**Prerequisites:**

Each student is required to have an active UCA **e-mail account**. This course also requires good quality, functional **access to the internet** and printing. These resources will be necessary to access course management software to collect assignments and provide and communicate course information. Assignments will require that you research information and have the ability to print your assignments when required. Email and other software are used quite extensively to transmit information concerning assignments to students.

The prerequisite course for this class is successful completion of Chemistry 3411 (and thus Chemistry 1450, 1451, 2410) and Biol 1440. An understanding of biochemistry must be built on prior knowledge of basic chemistry and chemical and physical properties of the classes of compounds that support life. It is particularly important to have a working knowledge of the topics listed below.

**Biochemistry is the first course that many students encounter in which they must recall and directly use a large amount of material from a prerequisite course.** Some students may require a review of basic chemical principles and this practice can often make the difference between success and failure.

**Key topics that are prerequisites to biochemistry**

1. Atomic Theory
2. Shapes of Molecules
3. Stoichiometry
4. Oxidation and Reduction
5. Physical states of matter
6. Thermodynamics
7. Bonding
8. Chemical Equations
9. Equilibrium
10. Acids and Bases
11. Isomerism
12. Organic functional groups and reactions

## **Class Communications**

Students are required to obtain all information missed from class absences from their peers. It is a very good idea to have a classmate record a lecture that you know you will miss. Once notes and/or lecture recording(s) have been obtained and reviewed, students should come to my office during office hours to clarify any confusion about the missed material.

If a texting app service is used for the class, class announcements may be sent out by email and/or text. Students should check their UCA email account regularly for class information/reminders. Announcements may also be made using the course management system.

## **Course Materials**

### **•Textbook**

Biochemistry, Miesfeld & McEvoy. This text is provided at reduced cost through our UCA bookstore this semester by the publisher. Students will provide feedback on the text when requested. The textbook is required for this course.

### **•Instructional Tutorial Videos**

*Students will be required to view and be responsible for knowing the information contained in online instructional tutorial videos provided by the instructor through her website.* Most of the material provided in these videos will serve as a refresher for most students or as introductory material on various biochemistry topics. Satisfactory performance on assessments in this course will require mastery of the material provided in the videos.

### **• Review Articles**

*Students will be required to download and read articles assigned in class or on the course schedule.* Many of these articles will be posted in our course management system in pdf form so the student must have computer/internet access that will allow downloading and printing/viewing the pdf files provided. Students will be responsible for the information contained within these assigned articles.

### **• Course Management Systems and Shared Folders**

Students must have access to the internet and electronic submission will require access to a our classroom management system and a shared folder service, such as Dropbox or Google Drive. Components of the assignments must be placed in the appropriate place (using the assigned instructions) in the course management system and/or shared folder before the time established as the due date/time. It must be named as described. You must not change your submitted files after this due date/time. Changing a submitted assignment after the designated due date/time is cheating and will be treated as such.

## **Class Attendance**

Class attendance is strongly recommended. Those students who attend class regularly are the most likely to succeed in this course. As mentioned above, a significant part of the material presented in this course will **not** be in the textbook. So attending class is necessary to obtain all the information that you will be held responsible for on the tests.

Also, unannounced attendance quizzes and attendance points for participation may be given at the instructor's discretion and these quizzes can almost never be taken at a later date if you miss class when a quiz is given. Whether a student is excused from an unannounced quiz or allowed to take it at a later date is solely the discretion of the instructor. If you must miss a class during which assessments are given or due, substantial proof (what constitutes this is solely my discretion) of the reason for the absence will be required before any consideration for make up work is granted. Any student who is absent from class for 4 class meetings without contacting me may be dropped from the course with a WF.

### **Make-up Policy**

Make-up exams will be given **only** at my discretion. If you must miss an exam for an unavoidable, significant and validated reason, contact me by email **BEFORE** the time of the scheduled exam.

### **Course Assignments (each category could include some or all assignments described below)**

#### **1) *Clinical Correlations Disease and/or Prescription Drug Round Ups***

*Disease Round ups:* For this project, students will select three diseases/disorders related to recent lecture topics. For each disease, the biochemical link between the disease and its corresponding topic will be summarized in one paragraph, one figure/schematic, and one relevant research article pdf provided. All three written summaries must not exceed one page (12pt font; single spaced).

*Prescription Drug Round ups:* For this project, students will select three drugs used to treat a disease related to recent lecture topics. For each drug Round Up, the disease, the drug structure, mechanism of action, and side effects will be summarized.

#### **2) *Going Deeper: Mini-Rabbit Hole Extension Excursions***

Students will investigate one lecture topic in more depth. A summary with primary literature figures/references will be submitted.

#### **3) *Scientific Investigative Learning: Research Rabbit Holes***

Just try to restrain yourself to ONE question at a time! Students will be divided into groups. Each group will be assigned a range of dates during which a) the selected question topic will be selected and approved by Isom, 2) the project completed, and 3) turned in via our specified course management system by the assigned due date. Each student will select a relevant question that occurs to them during lecture or their studies to delve into more extensively using review and journal articles. One thread will be followed and details will be uncovered and reported. The final projects will include a powerpoint file containing figures from the papers and figure captions, a word document providing the thought process as the question is addressed and explaining each figure shown, and pdfs of review/journal articles. Since in biochemistry one rabbit hole inevitably leads to a seemingly infinite number of others, examples of questions generated during the investigation of the selected morsel should be provided.

#### **4) *Looking Closer: Protein Structure Assignment***

Students will select a protein from the Protein Data Bank's Molecule of the Month collection. The protein's structure and function relationship will be investigated and documented using Rasmol.

#### **Course Evaluations**

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 twelfth week of instruction through the end of finals week by logging in to myUCA and clicking on the Evals button on the top right or following the link provided in the email announcing the evaluations sent by UCA.

I appreciate and take very seriously student comments concerning my courses. To encourage evaluation completion, a small number of bonus points may be offered if your course evaluation is completed and confirmation provided within the designated timeframe. Evaluations may be completed any time in the timeframe stated above but to be eligible for the bonus points, students must adhere to the instructions provided including completion timeframe and confirmation.

#### **Academic Dishonesty**

The penalties for cheating (ie. representing someone else's work as your own) are SEVERE!! Penalties include, but are not limited to, assigning an "F" for the work and/or the course to expulsion from the University. Obtaining assistance from other students on work assigned as "student work only" is cheating and will be prosecuted.

Photographing and/or keeping copies of exams and/or quizzes is prohibited and violates the academic dishonesty policy.

**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.**

#### **Electronic Devices**

Electronic devices not allowed in the student's possession during exams and/or quizzes. Any student wishing to bring one of these devices to class during testing may be required to leave the device on the desk at the front of the classroom at their own risk. The student is solely responsible for the safety of their devices if they choose to bring them into the classroom during exam times. Calculators are allowed only during those quizzes/exams requiring them.

Calculators may be allowed during some quizzes but not during exams. This is solely at the instructor's discretion.

Possession of electronic devices is permitted during regular lectures, labs and reviews, however these devices should be silenced prior to class to minimize the potential disruption of the lecture or other class activities. The use of cell phones during exams or quizzes is strictly prohibited.

### **Exams and Grading**

The following is a *tentative description of the exams/assignments included in this class*. Specific numbers may be changed if deemed necessary. Three exams will be given and a final exam, if included, will be comprehensive.

Late work will not be accepted except at the discretion of the instructor.

Exam grades **will not be curved** in the traditional sense of the word. A curve involves adding points to exam grades to raise the class average to a "C". Therefore, the average grade on an exam in this course will not necessarily be a C. However I do reserve the right to adjust exam scores when I deem necessary.

The following grading scale and assessments may be altered at any time by the instructor as seen fit and appropriate for a given class, including allowing the option to drop an exam and lowering grade threshold cutoffs. However, a student will always have the option to apply the following scale and take the maximum number of exams (3 plus final) below if they deem it would be beneficial for their grade. The scale and number of exams reflects a maximum and will not be increased. For instance, a student whose average at the end of the semester is 90% is guaranteed an A. This threshold will not be raised, it may however be lowered at the instructor's discretion.

Optional quizzes and miscellaneous assignments are included at the discretion of the instructor and therefore a range of potential points is listed. If assigned, the points will be included in grade calculation and are not optional.

**In addition to classroom participation and content, students will be required to watch and will be responsible for all information contained in any custom videos prepared and assigned by the instructor. The information contained will likely be included on quizzes, exams, and other assignments.**

If a project/assignment requires the selection and approval of a topic, such selection and approval must be obtained in a timely manner. Delay past the announced deadline will result in the assignment of a 0 grade for the project.

***If a student decides to drop a class, this decision is solely the responsibility of the student and should be made understanding the grade calculation methods explained and the instructor's right to adjust these when grades are assigned.***

**Exams (1-3)**

1-3 exams @ 100pts

**100 - 300 points**

**Misc (participation, assignments)**

**0 – 200 pts**

Quizzes/Assignments	100 – 300 pts
Final Exam (comprehensive)	0 - 200 points
<b>Total</b>	<b>~ 200 - 1000 points</b>

**Tentative Scale (subject to change):**

- A = 90% +
- B = 80 – 89%
- C = 70 – 79%
- D = 60 – 69%
- F = < 60%

**Important Dates**

- Jan 13th, last day to register or add a class**
- Mar 27th, last day to drop with a “W”**
- Apr 14th, last day to drop with “WP”**
- Final Exam: Thursday, May 4th, 8:00-10:00am**

**Drop policy**

The last day to drop with a “W” is March 27th. If a student drops on or before this date, a “W” is assigned regardless of the student’s grade in the course. Students may officially drop the course until April 14th, *however, the grade assigned March 27th will depend on the student’s grade status in the course at the time of the withdraw.* For example, if the student withdraws from the course on March 28th and at that time has earned a “C” or better in the course up to that point, a grade of “WP” will be assigned. If, however, the student’s grade is below a “C” at the time of withdraw (after March 27th but on or before April 14th) then a grade of “WF” will be assigned at the discretion of the instructor. Again, the grade assigned at this point is at the sole discretion of the instructor. *This designation is punitive and will negatively affect your grade point average!*

Students not attending class for whatever reason for more than four class periods may be dropped from the course by the instructor, at the instructor’s discretion.

**Disability Disclosure**

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, contact the UCA Disability Resource Center at 450-3613.

Students enrolled in this course who have a medically validated reason and a letter from DSS will be required to take assessments in a location determined by the instructor that provides for the allowances stated from DSS. Any other requests, not specifically provided for in the accommodation letter from DSS, will be considered and up to the sole discretion of the instructor.

**Emergency Procedures Summary**

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.*

### **Student Handbook Policies**

You should familiarize yourself with the policies listed in the most recent UCA student handbook (available on UCA website), especially those related to academics and the sexual harassment policy.

### **Stuff I shouldn't have to say.... But do.**

- 1) I cannot discuss grades by phone or email. I do not make appointments by phone.
- 2) If you do not have another class during my office hours or another pressing and valid reason, you cannot make an appointment to meet with me outside of my office hours. Just so you know... not wanting to get up early enough to come to my office hours is not a valid reason.
- 3) I will not discuss grades during the last week of the semester. The end of the semester is not the time to be concerned about your grade in the course, unless there are sufficient extenuating circumstances (I determine what those are... and just wanting to know isn't a good reason), I will not make appointments or meet with students dropping by to discuss their grade in the course
- 4) Students will not be allowed to select the color of the paper, the font, or font size of the exams or other assessment/assignment materials regardless of whether other instructors have provided such accommodation in the past for the student without a validated DSS accommodation requiring the requested action
- 5) Late work will almost certainly not be accepted because of some unexpected computational or mechanical failure. Be responsible enough to get the assignment in on the time/date it is due. Procrastination is directly correlated with the excuses given above. Don't do it.
- 6) If you choose to drop the course, the decision is yours. No one else's. I reserve the right to adjust grades/assignments as I deem warranted for a given class after you make your decision.

7) If you miss class, I will not provide make up lecture for you on the material. If you have to miss class, you should try to have someone record lecture for you and get at least two people's notes over the material you missed. You should use these to get up to speed as quickly as possible once you return... After you have done these things, please come to me if you have specific questions about the material you missed.

8) I don't give extra credit. There are plenty of opportunities for credit during the semester.

9) You must submit assignments in the manner requested and follow all directions concerning those assignments/exams or you may lose significant points. Unless specifically stated, assignments/projects **cannot** be emailed electronically and even those allowing electronic submission will most likely require a hard copy to be submitted as well.

10) If you don't follow directions and select a topic/drug in a timely manner (ranging from 1-2 weeks before assignment/presentation is due, depending on the assignment), one will not be assigned to you and you will forfeit points for the resulting/related assignment. Except under extenuating circumstances, topics will not be approved via email.

11) If you need to miss a class, it is your responsibility to obtain the missed information and you will forfeit any assignments and their corresponding points collected during that absence. I will not explain what you missed during class by email. The best method for obtaining information if you have to miss class is to have someone record lecture and take notes for you. You should never rely on one person's notes, however, since different people include different information in notes.



**Tentative Class Schedule**  
**\*all dates and content are subject to change!\***

<b>Week T/R</b>	<b>Lecture</b>	<b>Exams</b>
Jan x/12	Intro	
Jan 17/19	Hierarchy of Biochem/Acid-base	
Jan 24/26	Acid/Base (cont.)	
Jan 31/Feb 2	Acid-base/Thermo (begin)	
Feb 7/9	Thermodynamics (cont.)	
Feb 9/11	Protein Structure	Exam #1
Feb 14/16	Proteins (cont.)	
Feb 21/23	Proteins (cont.)	
Feb 28/Mar 2	Enzymes	
Mar 7/9	Enzymes (cont.)	
Mar 14/16	Carbohydrates & Lipids	Exam #2
Mar 21/23	<b>Spring Break</b>	
Mar 28/30	Carbohydrates & Lipids (cont.)	
Apr 4/6	Metabolism	
Apr 11/13	Metabolism (cont.)	
Apr 18/20	Metabolism (cont.)	Exam #3
Apr 25/27	Metabolism (cont.)	

\*\*\*\*\* Final Exam: Thursday , April 28th, 8 – 10 am \*\*\*\*\*