

Course Syllabus
Biochemistry Lab ONLINE/CHEM 4121
Spring 2021

Instructor: Lori Isom **Virtual Office Hours:** M 10:30-11am and by appointment
Email: lori@uca.edu

Synchronous Zoom Room Live Lab: M or W ~1:00 - 5:00 Online only. Synchronous meetings will occur on M or W (depending on your section). Students should reserve our regular time slot 1-5pm throughout the semester.

Course Description and Objectives:

This exclusively online course is designed to be an overview of important computational biochemical techniques and concepts. The majority of this course will involve computational analysis of crystallographic structures, and literature analysis. The course will also help to develop important data presentation and lecture skills relevant to the graduating scientist.

Prerequisites:

I will not be available on campus during the semester and the entire course is offered online only. You must have access to a Mac or PC computer on which you can download and run our structure analysis software, a **reliable** way to connect to the internet to attend Zoom Synchronous Labs and submit assignments, access to BlackBoard (BB) and UCA email account.

The prerequisite course for this class is successful completion of Chem 3411 (and thus Chemistry 1450, 1451, 2410) and Chem 4320 as a pre- or corequisite. Although it is not required, it is strongly recommended that students complete Chem 4320 before taking this course.

Especially in an online lab, students must have reliable access to the internet and electronic submission will require access to our classroom management systems as well as other technology used in the course. Components of the assignments must be placed in the appropriate place (using the assigned instructions) in the course management systems before the time established as the due date/time. It must be named as described.

Course Disclaimer: Given these uncertain times, I may have to use my judgement and change aspects of this course from what is stated in this syllabus throughout the semester, including assignments, point values, due dates, assessments, material covered, mode of delivery, etc. I will inform students of these changes when they are necessary. The instructor alone determines what types of changes and the timing of implementation of those changes will benefit the class the best and be the most appropriate.

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

A) Structure Safari and Protein Presentation

The analysis of macromolecular biochemical structures involves many aspects of biochemical research that are computationally based. Students will be assigned a protein whose structure they will analyze. This project will **require** access to a Mac or PC computer capable of downloading and running the program Chimera and access to Google Docs and Slides. The proteins assigned to the class will be both analyzed individually and presented individually, although groups presenting different aspects of the same protein or protein groups may be approved. If students work in groups, each student will be responsible for submission of their materials (articles/slides/safari journal) and will be graded individually. Each student will be responsible for the literature (including journals), analysis, and slide prep for their assigned protein.

All students will be required to complete assignments on time and should prepare for potential, unavoidable issues involving online resources (such as websites and databases unavailable, software not running properly on your specific computer) by allowing time for the issues to resolve and/or to check out a library laptop.

Topics covered include:

X-ray Crystallographic Experiment and Data
Structural and Literature Databases
Structural Coordinate Visualization
Protein Structural Investigation Introduction
Structural Detail: Relating Experimental Data to Literature
Comprehensive Protein Structure Analysis

Course Arenas Reflect Course Priorities

Each of the following three Content Arenas represents and fosters important over-arching goals of our course. Understanding these goals will help prepare you for what is to come.

A) Content Arena: In our Content Arena, you will find all lab related assignments as well as our lab schedule. I have chosen a combination of synchronous and asynchronous activities and sessions to share with you this semester as we journey through our investigation of protein structure.

B) Community Arena: In our Community Arena, you will find our Lab Lounge that I have built for you all. Our Lab Lounge will provide a place to nurture community within our class and will contain links to all of our discussion boards and Flipgrid opportunities to ask questions, to share what we learn with each other and to help each other out.

C) Connect Arena: In our Connect Arena, you will find the info to register for our Zoom Room Live Lab sessions (i.e. synchronous lab sessions), a due date calendar, announcement board, and for technology we will use in class. Fostering connections with each other and between our lab material and real life, practical topics is a foundational priority in my class...and I'm not going to let the online nature of our course strip those connections away. They are too important...in many ways, MOST important. Therefore, regularly during the semester we will meet synchronously during our assigned lab time in what I call Zoom Room Live (ZRL) lab sessions.

During these sessions, we will catch up and discuss assignments and progress. At the beginning of the course, lab lectures will also occur. During part 1 of the class, we will be learning about our protein structure techniques, using our molecular visualization software, and literature resources. During Part 2 of the course, students will lead their peers through a Structure Safari investigating a cool protein they will share with the class. The lab lectures during ZRL lab sessions will be recorded and posted in the Course Materials Arena section of our BB course so students can review the info or watch the lab lecture if they have to miss the ZRL lab session. Getting these videos processed, edited, and posted can take some time, however, so please be patient.

D) Course Materials Arena: In our Course Materials Arena, you will find a place where our course content is consolidated. Links will be provided here to course slides, syllabus, and course ZRL videos to make this material easy to find if you want to find it outside the sequence of the course (i.e. You're looking for the ZRL video on x-ray crystallography but it's now week 6. Instead of searching through each week's schedule and folder, you can come to this arena to find the video.) This arena is not included in the three I listed as priority defining because it provides convenience and support rather than specific goals.

Class Engagement and Attendance

Class engagement and attendance are strongly recommended. Those students who attend and participate in class regularly are the most likely to succeed in this course. If you must miss a lab 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. Only Doctor's notes from reputable physicians, MD or OD, will be accepted. Any student who is absent from class for 2 class meetings without contacting me may be dropped from the course with a F, at my discretion.

Class Communications

Students are required to obtain all information missed from class absences from their peers. The lab lectures provided will be posted in our BB under the Class Materials arena.

We will use the texting app Remind for communication in our course. All announcements and logistical clarifications will be sent through Remind. Sign up info is found in the Connect Course Arena in Blackboard. Students should also check their UCA email account regularly for class information.

Students are required to seek help with class material and logistic "how to" and "when to" questions (not topics that require privacy of course) through our "Get a Little Help from our Friends" discussion group before contacting the instructor. This way community is encouraged and fostered and course information is more effectively disseminated to more to fellow students who have the same or similar questions. It also allows us to help each other and that is important in my course.

Students should not expect instant (especially last minute) or continuous access via email. I will check my UCA email regularly during working hours. I cannot respond to inquiries that require in depth explanations or instruction by email or to requests that should have been posted in our

“Get Help” discussion group. Students are encouraged to contact me via email to set up a time to chat via our Zoom Room if privacy is requested or required, for example if specific grades or circumstances need to be discussed. These private topics should NOT be posted in our public discussion group.

Course Management Systems

Students must have access to the internet and electronic submission of all synchronous and asynchronous assignments, quizzes, and labs will require access to our classroom management system: Blackboard (BB). Components of the assignments must be placed in the appropriate place (using the assigned instructions) in the course management system before the time established as the due date/time. It must be submitted as described or no credit may be given or a penalty assessed.

Make-up Policy

Make-up work will be given **only** at my discretion. If you must miss an assignment for an unavoidable, significant and validated reason (I decide what is unavoidable, significant, etc), contact me by email **BEFORE** the time of the scheduled assignment.

If an option to drop score is provided in the course, only scores 1) earned by completing the assignment or 2) excused by the instructor can be dropped.

Any student who doesn't attend or participate in activities/assignments for two days may be dropped from the course with a WF.

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.

Using or contributing information to Chegg or other “help” sites violates the academic dishonesty policy and is just plain lazy cheating. DON'T DO IT.

Soliciting or providing any help to others (eg. answers, providing topics included, etc) when such help as been excluded as an allowed resource 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.

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Grading

The following is a *tentative description of the assessment/assignments included in this class*. Specific numbers and assignments may be changed if deemed necessary. Most assignments will be submitted through Blackboard but our Structure Safari will be submitted through Google Classroom.

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

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 lowering grade threshold cutoffs. The scale

reflects a maximum and will not be increased. For instance, a student whose average at the end of the semester is 92% is guaranteed an A. This threshold will not be raised, it may however be lowered at the instructor's discretion.

Boom/Pass/Fail (sounds like a Black-eyed Peas song...no?) Scale

Some assignments will be graded on what I call the Boom/Pass/Fail scale. Students earning a passing grade will have completed the assignment thoroughly and correctly. Students earning a Boom grade will have gone far above and beyond what would be expected on the assignment. Students earning a Fail grade would not have completed the assignment satisfactorily to earn a passing grade. Passing grades can either 1) contribute qualitatively to any participation credit applied in the course or 2) may include a certain number of points that are assigned as all (pass) or nothing (fail). A Boom grade also contributes to any participation credit but also may include bonus points, which add to a student's total points in the course. A Fail grade negatively affects any participation credit and may also result in the reduction of a student's overall points in the course.

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.

If a project/assignment requires the selection and approval of a topic or submission of materials before a deadline (like the Structure Safari), such selection, submission, and approval must be completed before the deadline. 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.

Grading

The following is a tentative description of the assignments included in this class. Specific numbers may be changed if deemed necessary.

Structure Safari and Protein Presentation	100 points
Structure Safari Journals	0-60 points
Structure Snapshot (Flipgrid)	0-25 points
Other Assignments (flipgrid, discussions, chimera skill trees, etc)	0-250 points
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Total	100-320 points

Tentative Scale (subject to change):

- A = 93% +**
- B = 85 – 92%**

C = 75 – 84%

D = 65 – 74%

F = < 64%

Important Dates

Monday, April 12th is currently posted as the last day to drop with a “W”

Drop policy

The last day to drop with a “W” is listed above. If a student drops on or before this date, a “W” is assigned regardless of the student’s grade in the course. The only possible grades assigned after the date are A-F letter grades and these obviously will impact your grade point average.

Students not attending class for whatever reason for more than three class periods or assignments 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

Although this course will be held online, a Emergency Procedures Summary (EPS) for the building in which this class is scheduled 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) 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.
- 9) 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.

10) 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.

11) Doctor's notes for missed assignments/lectures, if provided, must include the office information and must be provided by a qualified physician, an MD or DO, with direct knowledge and relevant specialty to the given situation. Notes from chiropractors, massage therapists, herbal specialists, and other non-traditional medical professionals will most likely not be accepted.

Tentative Class Schedule

all dates and content are subject to change!

Week/Date: M or W	Lab
1) M/W	No Lab
2) Jan 25/27	Introduction/Databases (A)
3) Feb 1/3	PDB and Xray Crystallography (A) / Chimera Skill Tree #1
4) Feb 8/10	Chimera Skill Tree #2
5) Feb 15/17	Chimera Skill Tree #3
6) Feb 22/24	Structure Safari Example #1
7) Mar 1/3	Structure Safari Example #2
8) Mar 8/10	Structure Safari Presentation (group A (1-2)) Structure Snapshot (F 11-12) due
9) Mar 15/17	Structure Safari Presentation (group B (3-4)) Structure Snapshot (E 9-10) due
10) Mar 22/24	SPRING BREAK!!
11) Mar 29/31	Structure Safari Presentation (group C (5-6)) Structure Snapshot (A 1-2) due
12) Apr 5/7	Structure Safari Presentation (group D (7-8)) Structure Snapshot (B 3-4) due
13) Apr 12/14	Structure Safari Presentation (group E (9-10)) Structure Snapshot (C 5-6) due
14) Apr 19/21	Structure Safari Presentation (group F (10-12)) Structure Snapshot (D 7-8) due
15) Apr 26/28	TBA