

Course Syllabus

Course Topic Focus: The Molecular Basis of Disease

Biochemistry II /CHEM 4335

Fall 2019

Instructor:	Lori Isom	Office Hours:	M, W, F 10:15-11:00 am
Office:	201D, Laney-Manion		by appointment
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Class Times:

Lecture: M, W, F 11:00-11:50 (Laney-Manion 105)

Course Description and Objectives:

Chem 4335 is the second semester of the two-semester Biochemistry sequence. This course is designed to be an intensive study of the important concepts in biochemistry today. The focus of this section of the course will be “The Molecular Basis of Disease” and will include in-depth consideration of the foundational biochemical processes establishing healthy physiological processes as well as the errors that lead to disease/disorder states. The course will include a variety of clinical and research related assessments in addition to traditional quizzes.

Prerequisites:

The prerequisite course for this class is successful completion of CHEM 4320 with a C or better.

This Biochemistry course will require students to recall and directly use a large amount of material from prerequisite courses. **Some students will benefit from a review of Biochemistry I (Chem 4320) and Organic Chemistry as well as advanced Biology topics.**

Course Materials

While the Biochemistry text used in Chem 4320 may be useful (and sufficient) for students, no text is required for this course but rather primary biochemistry research literature is used.

Students must have access to the internet and electronic submission will require access to our classroom management system, Google Classroom. 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 named as described.

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, the vast majority of the material presented in this course will **not** be in a textbook. So attending class is necessary to obtain all the information that you will be held responsible for on quizzes and assignments. Also, unannounced attendance quizzes and attendance points for participation may be given at the instructor's

discretion. Whether a student is excused from an announced 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 F, at my discretion.

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 Google Classroom, email, and/or text. Students should check their UCA email account regularly for class information/reminders.

• Course Management Systems

Students must have access to the internet and electronic submission will require access to a our classroom management system: Google Classroom. 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 exams will be given **only** at my discretion. If you must miss a quiz/assignment due date for an unavoidable, significant and validated reason, contact me by email **BEFORE** the time of the scheduled quiz/presentation/due date.

• 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.

Snow Days

If campus closing due to inclement weather prevents adequate scheduled class time for all students to present their lectures and/or Dr. Isom to lecture sufficiently to provide the necessary foundational information for the lecture topics, additional class meetings will be scheduled during X-period(s).

Class Layout and Medical Biochemistry/Research related Course Assignments

Each student will be assigned a number at random that will determine the order/date the three major course assignments are presented and/or due. Students will be allowed to exchange numbers with another willing student before the announced deadline. Dr. Isom must be informed in writing of this agreement before the established deadline.

The semester will be divided into two parts:

Part 1 (wks 1-11) *Biochemical Foundations and Clinical Correlations*: This part of the course includes Isom lectures on foundational biochemistry involved in certain physiological processes, which when they generate disease or disorder states. The material from these lectures will serve as background, foundational information for student MBD Lectures in part 2 of the semester. The information will also be expanded during Notecard Diagnoses and Rounds assignment described below. Quizzes will cover information presented during Isom lectures. Primary Assessments: Quizzes (usually 3 but could vary) and Notecard Diagnoses/Rounds.

Part 2 (wks 12-16) *Digging Deep into the Molecular Basis of Disease: Teaching and Research*: This part of the course includes Molecular Basis of Disease (MBD) Student Lectures (described below) during which each student teaches the class biochemistry detail of a disease related to one of their assigned categories. Students will expand their knowledge of one of the presented diseases by delving deep into one aspect presented in a MBD Lecture. Primary Assessments: MBD Student Lecture and Research Rabbit Hole.

Major Course Assessments: In addition to quizzes, students will complete **three** molecular basis of disease major assignments related to medical biochemistry or biochemical research.

1) *Clinical Correlations*: Notecard Diagnosis and Notecard Rounds presentation:

In addition to learning the foundational biochemistry of fundamental physiological systems, students will correlate the topics to clinical situations. A short case study type description of a patient with a disease/disorder related (directly or tangentially) to the current topic(s) will be provided. Students will confirm their diagnosis with Dr. Isom before completing their Patient Report and composing their 4x6 index card. Students will then prepare to present/answer questions regarding the diagnosis during a 5 minute presentation during which they may use their notecard and the chalk board (no slides).

2) *Going Deeper*: Molecular Basis of Disease (MBD) Student Lectures:

Each student will select and get approved a disease of interest related to their topic category. Building on Dr. Isom's foundational lecture material, the MBD 25 minute lecture will be prepared to instruct classmates on the molecular basis of the disease. The presentation will

include all information and current primary literature results necessary for the class to obtain an in-depth understanding of the topic.

Students must also:

- 1) have their MBD topic approved by the date designated for their group. (*Tentative Topic Approval Dates: 2/2 Group A; 2/23 Group B*)
- 2) submit their lecture slides and primary references through the corresponding Google Classroom assignment for their group.

3) Scientific Investigative Learning: Research Rabbit Holes

Just try to restrain yourself to ONE question at a time! Each group of students 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 individual 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.

Possible Additional Assessments

1) Disease Detectives

Students will investigate lecture-related disease/disorder clues given at the end of lecture and will provide info via Google Classroom and/or lecture discussion participation. Students will be only required to participate in a subset of those provided throughout the course. These will be graded as boom/pass/fail.

2) Topic Show and Tell

Students will present a show-and-tell related to one of the topics covered in class. Presentations will be limited to two minutes with one minute allowed for questions.

3) Mini-Rabbit Hole Excursions

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

4) Notecard Questions

All students complete the notecard diagnosis questions but students not presenting their notecard round not have the diagnosis deadline and will be graded on the Boom/Pass/Fail scale.

Grading

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

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

Quiz/Assignment grades **will not be curved** in the traditional sense of the word. A curve involves adding points to quiz/assignment 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.

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 contribute qualitatively to any participation credit applied in the course but they do not affect a student's numerical grade. 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.

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 quiz/assignment scores and lowering grade threshold cutoffs. However, a student will always have the option to apply the following scale below if they deem it would be beneficial for their grade. The scale and number of assignments/quizzes 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.

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.

Grading

The grading for this course will be assessed using the total points earned from the following assignments/assessments.

Quizzes (2)	30pts each	60 pts
Notecard Diagnoses/Presentation		75 pts
MBD Student Lecture		100 pts
Research Rabbit Holes		50-80 pts
Miscellaneous (Show/Tell, participation, other quizzes/assignments)		0-200 pts
Total		~ 217 - 515 pts

Tentative Scale (subject to change):

A = 90% +

B = 80 – 89%

C = 68 – 79%

D = 60 – 68%

F = < 60%

Important Dates

Friday, November 8th, last day to drop with a “W”

Drop policy

The last day to drop with a “W” is Nov 8th. 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 Nov 8th are A-F letter grades and these obviously will impact your grade point average.

Students not attending class for whatever reason for more than four class periods may be dropped from the course (before Nov 8th) 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

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.

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.

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 in person or by email. It is your responsibility to obtain the missed information and you will forfeit any assignments and their corresponding points collected during your absence. 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.

Tentative Class Schedule

all dates and content are subject to change!

Week # M/W/F	Topics
1) Aug x/x/23 -Group Assignment—Can have switch approved until 10am Wed. Aug 28th.	Introduction
2) Aug 26/28/30	<i>Signaling: Getting the Message Across...accurately.</i>
3) Sept LD/4/6 -Show and Tell #1 (F)	<i>Signaling: cont</i>
4) Sept 9/11/13	<i>Immunity & Inflammation: First Responders & Special Ops</i>
5) Sept 16/18/20 -Assign Notecard Diagnosis #1 -Tentative Quiz #1 (F)	<i>Immunity & Inflammation: cont</i>
6) Sept 23/25/27 -Notecard Diagnosis Round Presentations #1 (Group A (#1-5))	<i>Immunity & Inflammation</i>
7) Sept/Oct 30/2/4 -Notecard Rounds #2 (F; Group A (1-6))	<i>Cholesterol: Hoarder Balance: Fed Ex vs Garbage Collectors</i>
8) Oct 7/9/11 -Show and Tell #2 (F) - MBD Topic Selection approval deadline for Group A (F; 10/11)	<i>Bone: a Fairy Tale</i>
9) Oct 14/16/FB	<i>Microbiome: the Puppet Masters</i>
10) Oct 21/23/25 -Assign Notecard Diagnosis #2 -Tentative Quiz #2 (F) - MBD Topic Selection approval deadline for Group B (F; 10/25)	<i>Cancer: a Halloween Campfire story</i>
11) Oct/Nov 28/30/1 -Show and Tell #3 (W) -Notecard Rounds #2 (F; Group B (6-9))	TBA
12) Nov 4/6/8 - RRH topics due (F 11/8)	Student MBD Lectures (#1 M, #2 W, #3 F)
13) Nov 11/13/15 <i>Research Rabbit Hole: Group B due F 11/15</i>	Student MBD Lectures (#4 M, #5 W, Fmu)

14) Nov 18/20/22 **Student MBD Lectures (#6 M, #7 W, #8 F)*****
Research Rabbit Hole: Group B due F 11/20

15) Nov 25/TG/TG **TBA**

16) Dec 2/4 **Student MBD Lectures (#9 M, Wmu, Fdd)**

Research Rabbit Hole: Group A due F 12/4

* Because these presentation slots occur early in the sequence, students presenting during these times will be graded with more leniency to account for the lack of examples and feedback provided to those presenting later.

Abbrev: MBD Molecular Basis of Disease; FB (Fall Break); TG (Thanksgiving); Xmu (presentation make up day); Fdd (Friday study day)

Topics	Notecard (assgn/rounds)	Lecture (Present/Topic)	Research Rabbit Hole (Lect select; due)
	Groups Assigned (A(1-3), B(4-6), C(7-9))		
Sig/Immunity	C: w2/w4 Rounds 2/2	A: w13 1-2M 3-4W 5-6F Topic by 2/16	wk 2-4: A: 1-6; wk 5-7 C: 13-18 Due 10am Fmu 4/13
	w3 Quiz #1		
Inflamm/Choles/Lipid	A: w5/w7 Rounds 2/23	B: w14 7-8M 9-10W Fmu w15 11-12M Topic by 2/23	wk 8-10 B: 7-12 Due 10am F 4/20
	w6 Quiz #2		
Blood Clot/Misc	B: w9/w12 Rounds 3/30	C: w15 13-14W 15-16F w16 17-18M Topic by 3/9	All topics due W 3/28
	w8 Quiz #3		