CHEM 352-01 – Biochemistry II – Spring 2022
MWF 12:00–12:50 PM, "in person over Zoom" online

Instructor Contact Information:
Dr. Jennifer Fox
If you have a question that can be answered over email, please email me at FOXJL@cofc.edu, and I will reply within 48 h. I am also happy to help you with the material in individual or group office hours. I am available after class or just email me with your availability, and we will schedule an appointment over Zoom.

Course Description:
This course builds on the pre-requisite Biochemistry I (CHEM 351), in which you learned about the chemistry of biological molecules. In Biochemistry II, you will learn how these biomolecules are assimilated, transformed, synthesized, and degraded through the processes of metabolism, which are critical to life. Both courses detail how chemistry enables us to understand the biological world.

Student Learning Outcomes:
- Illustrate the chemical logic inherent in metabolism
- Compare and contrast the types of organic reactions that facilitate the breakdown and building of biological molecules
- Evaluate how errors in metabolism lead to human disease
- Recognize how metabolic pathways are regulated

Chapters and Topics:                      Exam #
7    Cofactors                             all
10   Intro to Metabolism                   all
11   Glycolysis                            1
12   Gluconeogenesis, Pentose Phosphate Pathway, Glycogen Metabolism 2
13   Pyruvate Dehydrogenase Complex, Citric Acid Cycle
14   Electron Transport, ATP Synthesis
15   Photosynthesis                        3
16   Lipid Metabolism                      4
17   Amino Acid Metabolism                 project
18   Nucleotide Metabolism

Important Dates:
The add/drop deadline is January 18.
The deadline to withdraw is March 25.

This syllabus is subject to change by the instructor at any time.
Required Materials:
2. Scientific calculator (e.g., TI-30Xa scientific calculator, approx. $15) that can handle scientific notation, log, antilog, exponents, and square roots.
   A graphing calculator is fine, but you may not program anything into it.
   You may not use your phone as a calculator on exams.
3. Computer with internet access. Your computer should meet CofC's requirements.
4. Webcam
5. Microphone (You can use headphones/ear buds with a built-in mic)

Class Format, Etiquette, and Attendance:
1. This class will be the same as a Biochemistry class occurring in a classroom, except we will meet online from different locations instead of meeting in one classroom.
   - Treat this class the same as you would an in-person Biochemistry class; by attending all class meetings, you will be able to participate, ask questions, and avoid falling behind.
2. It should go without saying that you should be equally as respectful of me and your classmates as you would be in a physical classroom setting.
3. Sign into your licensed CofC Zoom account when you join the class Zoom meetings.
   - Please use your preferred first and last name as your display name.
   - The Zoom link (or meeting ID and password) for all class meetings is found in the Announcements area of our OAKS page.
   - Class sessions will be recorded (voice and video). By remaining in this class, you consent to being recorded. Recordings are for instructional use only and may not be shared with anyone who is not enrolled in our class. If you miss class due to hospitalization, a death in the family, a religious holiday, an interview, etc., email me to request access to a recording of the day(s) you missed.
4. Unmute yourself to participate then mute yourself when you are done speaking.
5. Attendance on the days of all exams is mandatory.
   - If you foresee you will miss an exam for a school-sponsored, family, or religious event, email me ASAP to arrange to take the exam early.
   - If you miss an exam for an unforeseeable reason (e.g., illness or a family emergency), email me ASAP to excuse yourself from that assignment. That portion of your grade will then be an average of your remaining three scores.

Learning Assessment:
1. Homework project: This group project is designed to increase what you learn from the course and give you a form of assessment other than an exam to demonstrate your knowledge.

   Due: Friday, April 15 at noon
2. **Course engagement**: This part of your grade rewards you for engaging with the course by completing optional quizzes, participating in class, participating on the discussion board, and/or otherwise demonstrating your enthusiasm for the material and dedication to learning.

3. **Exams**: There will be four exams. The material in this course is cumulative, so an exam may include concepts from any topics covered up to that date.
   
   **Practice Quiz** opens on Wed., Jan. 26 and is due at 11 pm Friday, Feb. 4
   Exam 1 = Friday, Feb. 11 during class
   Exam 2 = Friday, Mar. 18 during class
   Exam 3 = Friday, Apr. 8 during class
   Exam 4 = Monday, Apr. 25 during class

4. **Final Exam**: The final exam is a cumulative exam. You must take it during our scheduled exam period unless you follow the College's protocol for re-scheduling a final exam and have all required paperwork processed and approved prior to 5 PM on the last day of class. Date and time are determined from the final exam schedule (available on this page, whenever CofC posts it: [https://registrar.cofc.edu/calendars/](https://registrar.cofc.edu/calendars/)).

   **All exams, including the final exam, will be taken according to these rules:**
   1. Find a quiet location conducive to test-taking; minimally, you may not take the exam while in the same room as another chemistry student in any class.
   2. Clear your workspace of all notes.
   3. You will need 2 blank sheets of paper (use one of these as the answer sheet you will be graded on for handwritten questions), your calculator, and your phone.
   4. Log into the appropriate OAKS Quiz and launch LockDown Browser on time, using a computer (not a tablet), and complete the guided check of your webcam and mic, which will both remain on during the assignment. During the survey of your workspace, show the absence of notes then show yourself placing your phone out of reach.
   5. All exams are to be completed the same way as though you were in a classroom. Consulting notes, books, the internet, or other people is not allowed.
   6. Part of the assignment will be completed by clicking on the right answer or typing an answer into the OAKS Quiz. If any of these questions requires math, write down the question number then write your work on your blank sheet of paper. Some questions may tell you to handwrite your answer on the answer sheet (instead of answering in the OAKS Quiz) (example: drawing a mechanism). For these questions, write the question number then answer them in order on the answer sheet and (if applicable) include all your mathematical work in your answer. Make sure your final answer is clear by circling it. If you write down more than one conflicting answer, none of them will be marked correct. After you finish each question requiring a handwritten answer, hold up your answer to the camera for a count of 5 seconds then move on to the next question in the OAKS Quiz.
   7. After finishing the assignment and submitting the Quiz in OAKS, immediately use the AdobeScan app on your phone to compile pictures of all your work (in order) into a single PDF document and submit it to the appropriate dropbox in OAKS within 5 minutes of
finishing the OAKS Quiz. This file should start with the answer sheet and after that have your blank sheet of paper including all mathematical work you did for any other questions. Before submitting, review the file to make sure all pages are present in the right order, oriented correctly, and legible. You are responsible for doing a trial run beforehand with multiple pages of handwriting to make sure AdobeScan is working for you, to avoid any technical difficulties that prevent you from submitting a legible version of your work on time.

**Grading Policy and Scale:**

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<tr>
<td>A</td>
<td>93-100</td>
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<tr>
<td>A-</td>
<td>90-92</td>
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<td>B+</td>
<td>87-89</td>
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<td>B</td>
<td>83-86</td>
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<td>C+</td>
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<td>C</td>
<td>73-76</td>
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<td>C-</td>
<td>70-72</td>
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<td>D+</td>
<td>67-69</td>
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There is no grade replacement or exam dropping policy.

There are no credit-bearing assignments other than those discussed in this syllabus.

**OAKS Course Site:**

1. You should check both your CofC email address and the OAKS course site regularly.
2. **Course Home: Announcements** – Messages about the course, information about exams, and any changes to dates, etc., will be posted here.
3. **Content** – The class notes will be posted here as PDF files. You will likely want to print those notes prior to class so you can write on them during class, or you can save them to your tablet so you can annotate them that way.
4. **Grades: Assignments** – This is where you will submit the homework project and PDFs of your work on exams.
5. **Grades: Quizzes** – Exams will be here.
6. **Grades: Grades** – Your grades will be here.
7. **Communication: Discussions** – Help each other with studying or find a study partner or form a study group.

*CHEM 352 Syllabus, pg. 4*
How to Succeed in this Course:
This is an upper-level course where the learning objectives are essentially to know and understand everything we talk about. Many students say this is the toughest course they took in college. They also report it was lifesaving for surviving their first year of med school classes.

To do well in this class, I suggest devoting regular time to it (daily or nearly daily). Cramming before exams will not be very beneficial and will hurt you in the long run as the material for each subsequent exam will be easier to understand if you know the material from the previous exams. I suggest attending class, participating in and staying actively engaged during class, and then actively reviewing your notes after class (learn the material we covered, look up anything you don’t understand, and arrive at the next class ready to learn new material). Doing this will help you stay engaged during class and gain the most out of the class meeting (because you'll be able to understand the new material we cover and draw connections to what you already know), keep up with the material and feel confident about it, and avoid a massive (and ultimately unhelpful) cramming session before the next exam.

Learn the material in layers. You can figure out this process in our first pathway, glycolysis, and then apply it to each pathway we learn. Start with the easiest information (what are the 10 steps of glycolysis – which enzymes catalyze them and what are the substrates and products of each enzyme). Then add a layer (how do you draw all those substrates and products) then another (which steps are metabolically reversible vs. irreversible) then another (what mechanism does each enzyme use), etc. Your brain can’t do all that in one day, so this is the worst course to try to cram for to squeak by. Instead of cramming, learn it. That involves looking at the material each day, actively writing out whatever pathway you are working on (both reviewing the layers of info you’ve already learned to keep them fresh and adding a new one). If you put the time and effort into to learn glycolysis and all the concepts it illustrates (energetics, regulation, etc.) really well, you'll find all the subsequent pathways will be a million times easier to learn because many of them are linked to glycolysis and others will apply the same concepts to different biomolecules.

Honor Code and Academic Integrity:
1. It is your responsibility to conform to the College of Charleston Honor Code and Code of Conduct (http://deanofstudents.cofc.edu/policies-and-procedures/honor-code-and-code-of-conduct.php).
2. In this course, collaborative studying is encouraged, but all exams are to be completed individually, without the use of notes, unauthorized use of the internet, or the work of other people. You may only use your cell phone at the end of an exam to scan in your finished work. You may not type any information into your calculator to be used during an exam. Exams must be turned in on time following the rules described above, or you will receive a zero on the assignment.
3. You may discuss the homework project with other classmates, but you must perform your own work. You may not copy from someone else’s work or from internet resources.
4. Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when suspected, are investigated. Each incident will be examined to determine the degree of
deception involved. Incidents where the instructor determines the student’s actions are related more to misunderstanding and confusion will be handled by the instructor. The instructor designs an intervention or assigns a grade reduction to help prevent the student from repeating the error. The response is recorded on a form and signed both by the instructor and the student. It is forwarded to the Office of the Dean of Students and placed in the student’s file. Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XXF in the course, indicating failure of the course due to academic dishonesty. This status indicator will appear on the student’s transcript for two years after which the student may petition for the XX to be expunged. The F is permanent. Students can find the complete Honor Code and all related processes in the Student Handbook (refer to the link in the middle of this webpage for a PDF of the handbook http://deanofstudents.cofc.edu/honor-system/studenthandbook/).

COVID-19 Reminders:
For the health and safety of yourself and those around you, you are required to wear a face-covering over both your nose and mouth while inside all campus buildings (you should do the same inside other public buildings). This mask should fit well; there should not be gaps anywhere between your face and the mask. N95s and KN95s provide better protection than other styles of masks, and all types of masks need to fit well to work effectively. Remember that students, faculty, and staff should not come to campus when they feel unwell, are in isolation due to illness, or are under quarantine due to close contact with infected people. It is safe for you to attend online classes from home during both isolation and quarantine.

SNAP (Students Needing Access Parity) and Disability Access:
The College will make reasonable accommodations for persons with documented disabilities. Students should apply for accommodations at the Center for Disability Services/SNAP office located on the first floor of the Lightsey Center, Suite 104 (http://disabilityservices.cofc.edu/). Students approved for accommodations are responsible for notifying me as soon as possible and for contacting me at least one week before accommodation is needed.

Support Resources:
For help with a wide variety of tech issues, including how to use OAKS (http://blogs.cofc.edu/sits/tutorials/oaks_tutorials/) and Zoom (http://blogs.cofc.edu/sits/zoom-video-resources/), visit Student Instructional Technology Services (https://blogs.cofc.edu/sits/). Zoom support is at https://support.zoom.us/hc/en-us/articles/206175806. For issues with your CofC accounts, contact ITservicedesk@cofc.edu (843-953-3375). Student health services (https://studenthealth.cofc.edu/), the Counseling Center (http://counseling.cofc.edu), and food and housing assistance (http://studentaffairs.cofc.edu/student-food-housing-insecurity/index.php) are also available. For important CofC information during hurricanes, visit https://continuity.cofc.edu/ and during the pandemic, visit https://cofc.edu/back-on-the-bricks.