

**FALL 2022 COURSE SYLLABUS**  
**BCH 4024: INTRODUCTION TO BIOCHEMISTRY AND MOLECULAR BIOLOGY**  
**COURSE COORDINATOR: Dr. Lauren G. Douma**

- **Credit:** four (4) hours
- **Course Objectives:** BCH 4024 provides a survey of the structure, function, and metabolism of amino acids, proteins, carbohydrates, lipids, and nucleic acids. It introduces concepts in molecular biology including replication, gene regulation, transcription, translation, and control of cell growth.
- **Prerequisites:** Organic Chemistry (CHM 2210 and 2211, CHM 2215 and 2216, or their equivalents at other universities) or consent of course coordinator. CHM 2200 is not an acceptable prerequisite.
- **Recommended Text:** *Lehninger Principles of Biochemistry, 8th edition*, by David L. Nelson and Michael M. Cox. New York: Macmillan Learning, 2021. Textbooks may be bought at the Health Center Bookstore (Room MG-15) and online as e-books. Used copies of the 7<sup>th</sup> edition are widely available.
- **Meeting Times and Places:** Lectures are Mondays, Tuesdays, Wednesdays, and Fridays (4th or 6th periods) in the second-floor Stetson MSB (Medical Sciences Building) Auditorium (Room N2-200). Schedule of lectures is located on pages 6-8 of the syllabus. Announcements will be made in class or on Canvas. Students are responsible for checking Canvas regularly for important announcements. The professors reserve the right to change the syllabus/schedule at any time.
- **Attendance:** We want to emphasize that attendance is central to success in this course. Students who regularly attend class and seek assistance or clarification score higher in BCH4024 than those who do not. Office hours for lecturers will be announced in class and posted on Canvas.

**\*\*Lectures will NOT be recorded and there are NO Zoom options available\*\***

- **Supplemental Instruction:** We strongly encourage all students participate in the SI Program. During the first week of class, an announcement will be posted containing all details regarding SI sign-up. All SI sessions will be held online via Zoom. We also offer Zoom “walk-in” tutoring sessions and Q&A on Campuswire available to all students in the course. SI Leaders are NOT permitted to record lectures for students.
  - Campuswire link: <https://campuswire.com/p/G6F5F1886>
  - Join code (you must use your UFL email address): 1441
- **Web Page:** This syllabus, expanded policies, and other information about BCH4024 are available on Canvas. The syllabus is also available at: <http://biochem.med.ufl.edu/academics/undergraduate-courses>.
- **Lecture Notes:** ALL faculty lecture notes for this course are available **ONLY** at the Canvas site under “Modules.” All other course-related files are also there. There is NO approved course package.
- **DRC Accommodations:** Students requesting special-needs accommodation for testing must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student. **During the first two weeks of class, it is the student’s responsibility to provide this documentation to [BIOCH-MAIL-BCH4024@mail.ufl.edu](mailto:BIOCH-MAIL-BCH4024@mail.ufl.edu).**

- **Tests and Grading:** All exams will be administered through Canvas/Honorlock. BCH4024 is designated an assembly exam course and the UF registrar has assigned us the following exam dates and times:
  - Exam 1 (100 pts): Monday, September 26 at 8:20-10:10 PM
  - Exam 2 (100 pts): Thursday, October 20 at 8:20-10:10 PM
  - Exam 3 (100 pts): Thursday, November 10 at 8:20-10:10 PM
  - Exam 4 (100 pts): Wednesday, December 14 at 7:30-9:30 AM

The four, ninety-minute examinations are each worth 100 points, with a course total of 400 points. There will be 50 multiple-choice questions on each exam. Students' final letter-grades will be determined solely based on performance on exams. Exams will cover the material discussed in the lectures and presented on PowerPoint slides. **There is NO EXTRA CREDIT.** For more detailed information on grading see the BCH4024 Testing and Grading Policies in Canvas. Information on the UF grading policy is available at <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

By agreement of the faculty, BCH4024 will **NOT** release exams for review. Be assured that exams undergo a rigorous statistical review of every individual question. The faculty also consider student concerns voiced *immediately* after exams. Adjustments to the answer key may occur and extra points will be awarded based only on the results of the faculty assessment. Dr. Douma is willing to review exam results with individual students who submit a request via email ([LDouma@ufl.edu](mailto:LDouma@ufl.edu)) within a week after the exam. Dr. Douma will **NOT** discuss if questions were "fair" and there is **NO** possibility of additional points once grades are posted.

- **Honorlock:** All BCH4024 exams will be administered using the Honorlocks Chrome extension (<http://www.honorlock.com/extension/install>). Honorlock will provide a scientific calculator. For all exams you must use Chrome web browser, a computer that is connected to the internet, and a webcam (external or internal) which can be turned to give a 360° view of your testing room. You are expected to take the exam on a computer that is **HARD-WIRED** to the internet to avoid loss of internet connection during the exam. You must be the only person present in your testing room. A pen/pencil and two (2) pieces of scratch paper are permitted, but you must show both sides of the empty scratch paper to the proctor during the 360° scan of your room. No other items are permitted while taking the exams.

UF libraries have rooms that can be reserved for exams: <https://ufl.libcal.com/reserve/>

- **Technical Issues:** If you experience technical difficulties during an exam, contact Honorlock support immediately: <https://honorlock.com/support/>. Dr. Douma cannot help you with connection problems! Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at [helpdesk@ufl.edu](mailto:helpdesk@ufl.edu).
- **Make Up Exams:** A make-up examination is available for students who miss **ONE** of the first three exams with the **PRIOR PERMISSION** of **DR. DOUMA**. Examples of valid reasons for missing an exam include illness, injury, or some unforeseeable academic scheduling conflict. Vacations ARE NOT a valid excuse for missing an exam. **Written documentation will be expected to support ALL makeup requests.** All make-up exams are scheduled on Thursday, November 17 at 6:00-8:00 PM. Make-up exams are not cumulative and are designed for equal difficulty. Students failing to take an exam will receive zero points for that test. No make-up exam is available for Exam 4, so to complete BCH4024 students must take Exam 4 as scheduled.

- **Course Communications:** Faculty announcements are made through Canvas and students are responsible for staying up-to-date with all announcements. Dr. Douma will communicate with individuals using email to your *ufl.edu* account. We cannot use gmail, yahoo, or any other email for official business. Questions about course organization, including exams and grades, should be directed to Dr. Douma via email (not telephone).

Each lecturer is responsible for his/her own material. Lecturers will announce their office hour format when their section begins. Office hours will provide students the opportunity to ask questions directly to the professor regarding material presented in the lectures. Individual SI Groups will establish their own communication plans.

- **BCH4024 Faculty Contact Information:**

- Dr. Lauren G. Douma, (“LGD”) and Course Coordinator  
Office: R3-254 ARB  
[LDouma@ufl.edu](mailto:LDouma@ufl.edu) or [Lauren.Douma@medicine.ufl.edu](mailto:Lauren.Douma@medicine.ufl.edu)
- DRC Accommodation Letters and Inquiries: [BIOCH-MAIL-BCH4024@mail.ufl.edu](mailto:BIOCH-MAIL-BCH4024@mail.ufl.edu)
- Dr. Robert McKenna (“RMK”)  
Office: LG-179 McKnight Brain Institute  
[rmckenna@ufl.edu](mailto:rmckenna@ufl.edu)
- Dr. Daniel L. Purich (“DLP”)  
Office: R3-126 ARB  
[dlpurich@ufl.edu](mailto:dlpurich@ufl.edu)
- Dr. William L. Zeile (“WLZ”)  
Office: R3-206A ARB  
[wzeile@ufl.edu](mailto:wzeile@ufl.edu)
- Dr. Antonette D. Bennett (“ADB”)  
Office: LG-179 McKnight Brain Institute  
[dendena@ufl.edu](mailto:dendena@ufl.edu)

- **Social Media:** Students sharing course materials or information through any large social media site, such as GroupMe or Chegg, is strictly **PROHIBITED**. Establishing or participating in a site will be considered a violation of the UF Honor Code. The Honor Code states, Section 3 **Violations of the Student Honor Code** Item 2, "Using any materials or resources, through any medium, which the Faculty has not given express permission to use and that may confer an academic benefit to the Student." (page 13). SI Leaders are the only individuals permitted to make GroupMe boards for BCH4024.
- **In-Class Recording:** Students are allowed to record video or audio of class lectures (A class lecture does NOT include assessments (quizzes, tests, exams), SI Sessions, private conversations between students in the class or between a student and the faculty or lecturer during a class session). However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited.

**Specifically, students may not publish recorded lectures without the written consent of the instructor.** To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a lecture recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

- **Honor Code:** UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code specifies behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct. If you have any questions or concerns, please consult Dr. Douma.
- **Course Evaluation:** Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

- **Campus Resources:**

Health and Wellness:

- *U Matter, We Care:* If you or someone you know is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu), 352-392-1575, or visit [U Matter, We Care website](#) to refer or report a concern and a team member will reach out to the student in distress.
- *Counseling and Wellness Center:* [Visit the Counseling and Wellness Center website](#) or call 352-392-1575 for information on crisis services as well as non-crisis services.
- *Student Health Care Center:* Call 352-392-1161 for 24/7 information to help you find the care you need, or [visit the Student Health Care Center website](#).
- *University Police Department:* [Visit UF Police Department website](#) or call 352-392-1111 (or 9-1-1 for emergencies).
- *UF Health Shands Emergency Room / Trauma Center:* For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; [Visit the UF Health Emergency Room and Trauma Center website](#).

Academic Resources:

- *Honorlock technical support:* <https://honorlock.com/support>
  - *E-learning technical support:* Contact the [UF Computing Help Desk](#) at 352-392-4357 or via e-mail at [helpdesk@ufl.edu](mailto:helpdesk@ufl.edu).
  - *Career Connections Center:* Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.
  - *Library Support:* Various ways to receive assistance with respect to using the libraries or finding resources.
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- **Tips to Succeed in BCH4024:** Based on the experience of former BCH4024 students, we highly recommend all students do the following if they want to be successful in BCH4024.
    - **Attend class in person.** Even during exam weeks. Students who regularly attend class, on average, perform significantly better than those that do not attend class regularly.
    - **Read lecture slides before class.** Look over the lecture slides before each class. This will help you understand what will be covered in class. Then you can take notes on what the professors says during class that helps you understand the information on the slides. Both information on the slides and what the professor says during class can be tested on the exams.
    - **Review lecture slides & class notes the same day.** On the SAME day as class, review the lecture slides once again and review the notes you took during class. Even better, rewrite your notes into condensed notes, flashcards, Anki decks, and/or concept maps. There is a lot of information in this course, so you want to review a little bit every single day.
    - **Go to professor office hours.** The professors cannot help you if they don't know you need help. The professors in this course are happy to help clarify concepts during their office hours. Additionally, questions asked may help you think about the course information differently.
    - **Participate in the SI Program.** The SI Program is the most valuable resource for BCH4024. To make the most of your SI session, be sure to attend lecture and review the material BEFORE attending your session. Remember, SI sessions are *supplemental* to the lectures. SI Sessions are not a replacement for attending lectures. Use Campuswire and Zoom "Walk-In" hours to get questions answered outside of your SI session (or if you are not in a SI group).
    - **TEACH!** Teaching, or explaining the material to a classmate, is one of the best ways to learn. Rereading the slides over and over will not help you understand the material. In this course you need to know the information AND understand the information so you can apply it to various situations. If you cannot explain a concept to a classmate, that means you do not understand the information.

**COURSE OUTLINE FOR  
 BCH 4024: INTRODUCTION TO BIOCHEMISTRY AND MOLECULAR BIOLOGY  
 Fall 2022**

<b><u>Lecture</u></b>	<b><u>Date</u></b>	<b><u>Lecturer</u></b>	<b><u>Lecture Topic</u></b>
1	W 8/24	RMK	Biological Organization
2	F 8/26	RMK	Water, Molecular Interactions, and Acid-Base Chemistry
3	M 8/29	RMK	Amino Acids
4	T 8/30	RMK	Peptides and Peptide Bonds
5	W 8/31	RMK	Three-Dimensional Structure of Proteins
6	F 9/2	RMK	Protein Dynamics and Protein Folding
	<b>M 9/5</b>		<b>Labor Day (No Class)</b>
7	T 9/6	RMK	Protein Separation and Purification
8	W 9/7	RMK	Protein Ligand Interactions
9	F 9/9	RMK	Enzyme Mechanism and Catalysis I
10	M 9/12	RMK	Enzyme Mechanism and Catalysis II
11	T 9/13	RMK	Enzyme Kinetics and Inhibition
12	W 9/14	RMK	Enzyme Regulation and Bioenergetics
13	F 9/16	RMK	Carbohydrates and Glycobiology
14	M 9/19	DLP	Digestion and Amino Acid Absorption
15	T 9/20	DLP	Mobilization of Amino Acids
16	W 9/21	DLP	Ammonia Assimilation
17	F 9/23	DLP	Urea Cycle: Averting Ammonia Toxicity
18	M 9/26	DLP	Biosynthesis of Nonessential & Specialized Amino Acids
<b>E1</b>	<b>Monday, Sept. 26 at 8:20-10:10 PM</b>		<b>EXAM 1 [LECTURES 1 THRU 13]</b>
19	T 9/27	DLP	Pyrimidine Nucleotide Biosynthesis
20	W 9/28	DLP	Purine Nucleotide Biosynthesis Salvage & Degradation

21	F 9/30	DLP	Catch up/Review
22	M 10/3	WLZ	Lipids
23	T 10/4	WLZ	Biological Membranes
24	W 10/5	WLZ	Membrane Proteins
	<b>F 10/7</b>		<b>Homecoming (No Class)</b>
25	M 10/10	WLZ	Membrane Protein Transporters
26	T 10/11	WLZ	Membrane Protein Signaling 1
27	W 10/12	WLZ	Membrane Protein Signaling 2
28	F 10/14	ADB	Introduction to Metabolism
29	M 10/17	ADB	Glycolysis
30	T 10/18	ADB	Gluconeogenesis
31	W 10/19	ADB	Glycogen Metabolism
<b>E2</b>	<b>Thursday, Oct. 20 at 8:20-10:10 PM EXAM 2 [LECTURES 14 THRU 27]</b>		
32	F 10/21	ADB	Regulation of Carbohydrate Metabolism
33	M 10/24	ADB	Cellular Respiration
34	T 10/25	ADB	The Citric Acid Cycle
35	W 10/26	ADB	Electron Transport
36	F 10/28	ADB	Oxidative Phosphorylation
37	M 10/31	WLZ	Introduction to Lipid Metabolism
38	T 11/1	WLZ	Ketones and Fatty Acid Synthesis
39	W 11/2	WLZ	Regulation of Fatty Acid Metabolism
40	F 11/4	WLZ	Cholesterol Synthesis
41	M 11/7	WLZ	Plasma Lipoproteins
42	T 11/8	LGD	DNA Structure and Genome Organization
43	W 11/9	LGD	DNA Replication I

**E3 Thursday, Nov. 10 at 8:20-10:10 PM EXAM 3 [LECTURES 28 THRU 41]**

**F 11/11 Veterans Day (No Class)**

44	M 11/14	LGD	DNA Replication II
45	T 11/15	LGD	Prokaryotic Transcription and Gene Regulation I
46	W 11/16	LGD	Prokaryotic Transcription and Gene Regulation II

**MAKE-UP Thursday, Nov. 17 at 6:00-8:00 PM Exams 1-3 MU (written permission by Dr. Douma only)**

47	F 11/18	LGD	Eukaryotic Transcription and Gene Regulation I
48	M 11/21	LGD	Eukaryotic Transcription and Gene Regulation II
49	T 11/22	LGD	Eukaryotic Transcription and Gene Regulation III

**W-F 11/23-11/25 Thanksgiving Break (No Class)**

50	M 11/28	LGD	Post-transcriptional RNA Processing
51	T 11/29	LGD	Translation I
52	W 11/30	LGD	Translation II
53	F 12/2	LGD	DNA Damage & Repair
54	M 12/5	LGD	Signal Transduction and Cell Cycle Control
55	T 12/6	LGD	Cancer Biology I
56	W 12/7	LGD	Cancer Biology II

**E4 Wednesday, Dec. 14 at 7:30 - 9:30 AM EXAM 4 [LECTURES 42 THRU 56]**