

SPRING 2023 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). 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 7th 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.
- **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 provide recorded lectures for students.
 - Campuswire link: <https://campuswire.com/p/G6894913D>
 - Join code (you must use your UFL email address): 6916
- **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>. The professors reserve the right to change the syllabus/schedule at any time.
- **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 accommodations for testing must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student. It is the student’s responsibility to send their letter of accommodations to BIOCH-MAIL-BCH4024@mail.ufl.edu at least 3 business days before the first exam.

- **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): Thursday, February 9 at 8:20 PM
 - Exam 2 (100 pts): Thursday, March 2 at 8:20 PM
 - Exam 3 (100 pts): Thursday, April 6 at 8:20 PM
 - Exam 4 (100 pts): **Monday**, May 1 at 10:00 AM

Students will have ninety (90) minutes for each exam. Each exam is worth a total of 100 points, with a course total of 400 points. There will be 50 multiple-choice questions on each exam (2 points per question). 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 slides. **There is NO EXTRA CREDIT.** For more information see the BCH4024 Testing and Grading Policies in Canvas. 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 to the entire class 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 exams with individual students who submit a request via email (LDouma@ufl.edu) within a week after the exam. There is **NO** possibility of additional points once grades are posted.

- **Honorlock:** Honorlock Chrome extension (<http://www.honorlock.com/extension/install>) will be used for all exams. Honorlock will provide a scientific calculator. For all exams you must use Chrome web browser and a webcam (external or internal). It is highly recommended to take exams on a computer that is **HARD-WIRED** to the internet to avoid loss of connection. 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 before the exam. No other items are permitted while taking the exams. Students' heads and upper bodies must be always fully visible in the camera frame. **Cheating of any kind will NOT be tolerated and will be reported to the UF Honor Court.**

ALL students must take the practice Honorlock quiz on Canvas before EVERY exam. Failure to take the quiz before an exam means you are accepting responsibility for any technical issues that occur.

UF libraries have rooms that can be reserved for exams (we recommend the Health Science Library): <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.
- **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 to Dr. Douma.

- **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, April 13 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.
- **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.
- **Course Communications:** Announcements are made through Canvas and students are responsible for staying up-to-date. 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 or Lauren.Douma@medicine.ufl.edu
- DRC Accommodation Letters and Inquiries: BIOCH-MAIL-BCH4024@mail.ufl.edu
- Dr. Daniel L. Purich ("DLP")
Office: R3-126 ARB
dlpurich@ufl.edu
- Dr. William L. Zeile ("WLZ")
Office: R3-206A ARB
wzeile@ufl.edu

- **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.

- **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, 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.

- [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.
- **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.** Students who regularly attend class tend to perform significantly better than those that do not attend. Exam material includes slides and what is verbally stated in lecture.
 - **Read lecture slides before class.** You will get an idea for what will be covered in class. Also, you will not be overwhelmed by reading the slides for the first time while trying to listen to the lecturer.
 - **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. 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.** Let us help you! 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. Seek out help early in the semester!
 - **Participate in the SI Program.** The SI Program is the most valuable resource for BCH 4024. To make the most of your SI session, be sure to attend lecture and review the material BEFORE attending your session. 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 the material.** Teaching, or verbally explaining concepts, is one of the best ways to learn. Passive studying 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.

**COURSE OUTLINE FOR
BCH 4024: INTRODUCTION TO BIOCHEMISTRY AND MOLECULAR BIOLOGY
SPRING 2023**

<u>Date</u>	<u>Lecturer</u>	<u>Lecture Topic</u>
M 1/9	DLP	Energy & Thermodynamics (A)
T 1/10	DLP	Water, pH & Buffers (B)
W 1/11	DLP	Amino Acids as Protein Building Blocks (C)
F 1/13	DLP	Peptides: Bonding, Ionization & Sequencing (D)
M 1/16		Martin Luther King Jr. Day (No Class)
T 1/17	DLP	Interactions Among Amino Acid Side-Chains (E)
W 1/18	DLP	Understanding Protein Structure (F)
F 1/20	DLP	Protein Folding, Unfolding & Misfolding (G)
M 1/23	DLP	Protein Binding Interactions: Myoglobin & Hemoglobin (H)
T 1/24	DLP	Protein Binding Interactions: Myoglobin & Hemoglobin (I)
W 1/25	DLP	How Enzymes Work (J)
F 1/27	DLP	How Enzymes Work (K)
M 1/30	DLP	Enzyme Kinetics & Inhibition (L)
T 1/31	DLP	Basics of Metabolism: Pathways, Regulation and Bioenergetics (M)
W 2/1	DLP	Digestion and Amino Acid Absorption (N)
F 2/3	DLP	Mobilization of Amino Acids (O)
M 2/6	DLP	Ammonia Assimilation (P)
T 2/7	DLP	Urea Cycle: Averting Ammonia Toxicity (Q)
W 2/8	DLP	Biosynthesis of Nonessential & Specialized Amino Acids (R)
E1	Thursday, Feb. 9 at 8:20-10:10 PM	EXAM 1 [LECTURES FROM 1/9 to 2/3]
F 2/10	DLP	Pyrimidine Nucleotide Biosynthesis & Ribonucleotide Reductase (S)

M 2/13	DLP	Purine Nucleotide Biosynthesis, Degradation & Salvage (T)
T 2/14	DLP	Carbohydrates: Structure and Function (U)
W 2/15	WLZ	Lipids
F 2/17	WLZ	Biological Membranes
M 2/20	WLZ	Membrane Proteins
T 2/21	WLZ	Membrane Protein Transporters
W 2/22	WLZ	Membrane Protein Signaling 1
F 2/24	WLZ	Membrane Protein Signaling 2
M 2/27	WLZ	Catch Up/Review
T 2/28	WLZ	Introduction to Metabolism Part 2
W 3/1	WLZ	Glycolysis
E2	Thursday, March 2 at 8:20-10:10 PM EXAM 2 [LECTURES FROM 2/6 to 2/27]	
F 3/3	WLZ	Gluconeogenesis
M 3/6	WLZ	Glycogen Metabolism
T 3/7	WLZ	Regulation of Carbohydrate Metabolism
W 3/8	WLZ	Cellular Respiration
F 3/10	WLZ	The Citric Acid Cycle
M 3/13 – F 3/17	Spring Break (No Class)	
M 3/20	WLZ	Electron Transport
T 3/21	WLZ	Oxidative Phosphorylation
W 3/22	WLZ	Introduction to Lipid Metabolism
F 3/24	WLZ	Ketones and Fatty Acid Synthesis
M 3/27	WLZ	Regulation of Fatty Acid Metabolism

T 3/28	WLZ	Cholesterol Synthesis
W 3/29	WLZ	Plasma Lipoproteins
F 3/31	WLZ	Catch Up/Review
M 4/3	LGD	DNA Structure and Genome Organization
T 4/4	LGD	DNA Replication
W 4/5	LGD	DNA Replication

E3 Thursday, April 6 at 8:20-10:10 PM EXAM 3 [LECTURES From 2/28 to 3/31]

F 4/7	LGD	Prokaryotic Transcription and Gene Regulation
M 4/10	LGD	Prokaryotic Transcription and Gene Regulation
T 4/11	LGD	Eukaryotic Transcription and Gene Regulation
W 4/12	LGD	Eukaryotic Transcription and Gene Regulation

MAKE-UP Thursday, April 13 6:00-8:00 PM Exams 1-3 (written permission by Dr. Douma only)

F 4/14	LGD	Eukaryotic Transcription and Gene Regulation
M 4/17	LGD	Post-transcriptional RNA Processing
T 4/18	LGD	Translation
W 4/19	LGD	Translation
F 4/21	LGD	DNA Damage & Repair
M 4/24	LGD	Signal Transduction & Cell Cycle Control
T 4/25	LGD	Cancer Biology
W 4/26	LGD	Cancer Biology

E4 Monday, May 1 at 10:00 AM - 12:00 PM EXAM 4 [LECTURES FROM 4/3 to 4/26]