

SPRING 2021 COURSE SYLLABUS
BCH 4024/ GMS 5905: INTRODUCTION TO BIOCHEMISTRY AND MOLECULAR BIOLOGY
DISTANCE LEARNING
COURSE COORDINATOR: Dr. Lauren Douma

1. Course Description: *Four (4) credits.* BCH 4024 (undergraduate student section) & GMS 5905 (graduate student section) surveys the structure, function, and metabolism of amino acids, proteins, carbohydrates, lipids, and nucleic acids. It introduces concepts in cell structure, replication and growth, and metabolic regulation.

2. 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 for BCH 4024/ GMS 5905. The lecturers of the course assume a working knowledge of the concepts and vocabulary of organic chemistry.

3. Recommended Text: *Lehninger Principles of Biochemistry, 7th edition*, by David L. Nelson and Michael M. Cox. New York: W.H. Freeman and Company, 2017. There is no assigned reading in this course. Exam questions are *not* drawn exclusively from the textbook, but the text can provide a useful alternate view of material covered in lectures.

4. Web Page: Course material is available on the Canvas E-Learning site: <https://elearning.ufl.edu/>. Access lecture videos and slides by clicking the respective exam module button on the course homepage. Lectures videos are the property of UF and cannot be downloaded. Weekly announcements can be found by clicking “Announcements” in the left-hand menu.

Students are responsible for keeping up-to-date with all information communicated through the announcements.

5. Tests and Grading: During the first week of class there will be a course information quiz worth 10 points. Students' final letter-grades will be determined based on performance on four (4) examinations. Each exam is worth 100 points with 50 questions on each exam (2pts/question). The grading scale for this course is based on the performance of the entire class on all 4 exams. Updated grading scales will be provided after each exam. There is **NO EXTRA CREDIT**. The UF grading policy is available at: <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

Multiple choice exams: There will be a total of 4 exams, each 90 minutes long with 50 questions. Exams will be available from 9:00 AM (EST) to 11:59 PM (EST) (testing dates listed below in course outline). You must begin your exam **NO LATER** than 9:59 PM (EST) on the test day in order to finish your exam by the 11:59 PM (EST) deadline. Exams will cover the material discussed in the specified lecture videos and notes. Students cannot *retake* exams.

By agreement of the faculty, BCH4024 will **NOT** provide a review of individual student exam results this semester. 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.

Honorlock: All exams will be administered using the Honorlock Chrome extension. Honorlock will provide a calculator when an exam requires one. 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. If your connection is dropped, the exam timer will not stop. *In case of technical issues during an exam, contact Honorlock support IMMEDIATELY! Use the chat feature within Honorlock or go to link below.*

Install Honorlock: <http://www.honorlock.com/extension/install>

Honorlock technical support: <https://honorlock.com/support/>

A practice Honorlock quiz is available all semester within the “Quizzes” section. **Students are responsible for ensuring their internet connection and computer are compatible with Honorlock before beginning each exam.**

Make-up exams: Make-up exams will be granted ONLY for emergencies. Students must provide adequate documentation of a need to miss an exam and receive approval by Dr. Douma in order to take a make-up exam. ALL make-up exams will take place from 9:00 AM (EST) to 11:59 PM (EST) Thursday, April 8th. The make-up exams are specific to the missed exam, not cumulative.

GMS 5905 graduate students: As graduate students, all individuals in the GMS 5905 section have additional requirements for this course. An announcement will be made during the first week of the course explaining the additional requirements. **If you do not see this announcement by the end of the 1st week of class, please email Dr. Douma ASAP.** This does NOT apply to BCH 4024 students.

6. Necessary Time Commitment and Management: As a distance learning class, it is expected that each student manages their own time. BCH 4024/ GMS 5905 is a demanding course and will require a substantial and diligent time commitment to do well. On-campus, BCH 4024/ GMS 5905 is a 4 lecture per week course. BCH 4024/ GMS 5905 is a rigorous course and requires significant studying time outside of the lectures in order to be successful. *Studying tips from previous successful students have been compiled within the introduction module of the course.* Take advantage of this information.

7. Piazza: Questions on course material should be posted to the Piazza page. Piazza allows students to post questions and answers while staying anonymous to other students. This website also allows students to see their classmates' questions. Students are encouraged to work together to answer each other's questions. Actively participating on the Piazza page assists in learning course material. The Teaching Assistants (TAs) will monitor the Piazza page weekly to ensure student's answers are correct and to answer any unanswered questions. Piazza will be inactive during all exams.

Students are encouraged to use the "Search for Teammates!" tool located at the top left of the Piazza page to form studying groups. Every UF student has a free Zoom account which you can use to virtually meet up with your studying group to review course concepts. Access your UF Zoom account here: <https://ufl.zoom.us/>

To join the Piazza page go to: <https://piazza.com/ufl/spring2021/bch4024andgms5905>
Register with your UFL email address (you can change your preferred email later)
Use the password: biochemspring2021

Download Piazza App for Android or iPhone: <https://piazza.com/product/mobile>

****Inappropriate/unprofessional posts will be removed. After 3 incidences, you will be removed from Piazza****

8. Supplemental Instruction (SI): FREE group tutoring sessions will be offered via Zoom by the SI program. The SIs are previous BCH4024 students who have been selected for the SI teaching program. The SI program is very popular and highly effective. We strongly encourage all students to participate. **Attendance is required to remain in the program.** Students are permitted 3 unexcused absences for the entire semester. Signup information will be announced during the 1st week of class.

For those who cannot attend SI tutoring sessions, practice questions constructed by the SI program will be made available. **The lecturing professors do NOT participate in making the practice questions,** thus the practice questions may not reflect the type of questions seen in the exams. The practice questions should be used to gauge your knowledge.

9. Course Communications: Students are responsible for regularly checking announcements for important updates. Questions about course organization & operation, including grades, should be directed to Dr. Douma using the Canvas email system. **In the title of your email put “Distance Learning Your Name”.** This will help prioritize your email.

Each lecturer is responsible for his/her own material. Lecturers will announce their office hours and online format. Individual faculty members set their own office hours and policies governing those interactions. Faculty will make themselves available through some mechanism involving Zoom conferencing in their preferred format. He/she may -- or may not -- choose to record office hours.

All emails must be sent from a UF email address.

Dr. Lauren Douma (“LGD”) - Course Coordinator (**Use Canvas email**) ldouma@ufl.edu

Dr. Daniel L. Purich (“DLP”) dlpurich@ufl.edu

Dr. William L. Zeile (“WLZ”) wzeile@ufl.edu

10. DRC Accommodations: Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with Dr. Douma ASAP.

11. Privacy: Students who participate in live online office hours or review sessions with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

12. Course Evaluations: 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 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 ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at gatorevals.aa.ufl.edu/public-results/

**COURSE OUTLINE FOR
BCH 4024/ GMS 5905: INTRODUCTION TO BIOCHEMISTRY AND MOLECULAR BIOLOGY**

**COURSE INFORMATION QUIZ OPENS at 9:00 AM (EST) 1/11 &
CLOSES at 11:59 PM (EST) on 1/18**

A recommended lecture viewing schedule is available on the “Syllabus” page of the Canvas site

<u>Lecture</u>	<u>Lecturer</u>	<u>Lecture Topic</u>
1	DLP	Water structure, Ionization, pH and Buffers
2	DLP	Amino Acids as Protein Building Blocks
3	DLP	Peptides - Bonding, Ionization, and Sequencing
4	DLP	Interactions among Amino Acid Side Chains
5	DLP	Understanding Protein Structure
6	DLP	Protein Folding, Unfolding, and Misfolding
7	DLP	Protein Binding Interactions (Hemoglobin)
8&9	DLP	How Enzymes Work
10&11	DLP	Enzyme Kinetics
12	DLP	Carbohydrates - Structure & Function
EXAM 1 Thursday, 2/4 [LECTURES 1 THRU 12] OPENS at 9:00 AM & CLOSES at 11:59 PM (EST)		
13	DLP	Introduction to Metabolism Part 1 - Basics of Pathway Organization, Regulation and Bioenergetics
14	DLP	Digestion and Amino Acid Absorption
15	DLP	Mobilization of Amino Acids
16	DLP	Ammonia Assimilation
17	DLP	Urea Cycle: Averting Ammonia Toxicity
18	DLP	Biosynthesis of Nonessential & Specialized Amino Acids
19	DLP	Pyrimidine Nucleotide Biosynthesis
20	DLP	Purine Nucleotide Biosynthesis Salvage & Degradation Transporters
21	WLZ	Lipids

22	WLZ	Biological Membranes
23	WLZ	Membrane Proteins
24	WLZ	Membrane Protein Transporters
25	WLZ	Membrane Protein Signaling 1
26	WLZ	Membrane Protein Signaling 2

EXAM 2 Thursday, 3/4 [LECTURES 13 THRU 26] OPENS at 9:00 AM & CLOSSES at 11:59 PM (EST)

27	WLZ	Introduction to Metabolism Part 2
28	WLZ	Glycolysis
29	WLZ	Gluconeogenesis
30	WLZ	Glycogen Metabolism
31	WLZ	Regulation of Carbohydrate Metabolism
32	WLZ	Cellular Respiration
33	WLZ	The Citric Acid Cycle
34	WLZ	Electron Transport
35	WLZ	Oxidative Phosphorylation
36	WLZ	Introduction to Lipid Metabolism
37	WLZ	Ketones and Fatty Acid Synthesis
38	WLZ	Regulation of Fatty Acid Metabolism
39	WLZ	Cholesterol Synthesis
40	WLZ	Plasma Lipoproteins

EXAM 3 Thursday, 4/1 [LECTURES 27 THRU 40] OPENS at 9:00 AM & CLOSSES at 11:59 PM (EST)

EXAM 1-3 MAKE-UP Thursday, 4/8 from 9 AM – 11:59 PM (EST) (written permission by Dr. Douma only)

41	LGD	DNA Structure and Genome Organization
42	LGD	DNA Replication
43	LGD	Prokaryotic Transcription and Gene Regulation
44	LGD	Eukaryotic Transcription and Gene Regulation I
45	LGD	Eukaryotic Transcription and Gene Regulation II
45	LGD	Post-Transcriptional RNA Processing
46	LGD	Translation I
47	LGD	Translation II and Post-Translational Modifications
49	LGD	DNA Damage and Repair
50	LGD	Signal Transduction and Cell Cycle Control
51	LGD	Cancer Biology I
52	LGD	Cancer Biology II

EXAM 4 Monday, 4/26 [LECTURES 41 THRU 52] OPENS at 9:00 AM & CLOSSES at 11:59 PM (EST)