

BCH 3025 SECTION 0020 SYLLABUS

FUNDAMENTALS OF BIOCHEMISTRY

BCH 3025

SECTION 0020

Class # 11030

4 Credit Hours

SPRING 2024

Online Class



middleearthbiochem.wordpress.com

INSTRUCTOR: Peggy R. Borum, Ph.D.

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OFFICE HOURS: Office hours for individual students by appointment using zoom. An opportunity for everyone to chat about this course, biochemistry in general, or most any topic that interests the student is available every Wednesday afternoon at 3:00 PM Eastern time and every Sunday at 3:00 PM Eastern time (Join URL: <https://uflphi.zoom.us/j/4742141397>).

COURSE TA: Robert Madden – robert.madden@ufl.edu

Robert is a graduate student in the Department of Food Science and Human Nutrition. If you have questions or need assistance from Robert, you should email him through E-Learning to schedule an appointment. If for some reason that does not work, his University of Florida email address is given above.

COURSE WEBSITE: <http://lss.at.ufl.edu> (Canvas)

COURSE COMMUNICATIONS: Communication is important to all of us. For email communication, use of the Canvas email is probably the better choice because the instructor’s regular email box is often overflowing. In Canvas, it is easy to email both the instructor and the TA at the same time. The best method for resolving technical issues is to [visit the helpdesk website](#) or call 352-392-4357. The best way to deal with any makeup work or discuss unusual issues is to attend the office hours or Biochemistry Chats on zoom.

REQUIRED TEXT: The required text for BCH 3025 is Lehninger Principles of Biochemistry by David L. Nelson, Michael M. Cox, and Aaron A. Hoskins Eighth Edition, 2021.

ACHIEVE ONLINE MATERIALS FOR TEXTBOOK AND SELF-STUDY: The eBook text and the online materials are available via Achieve. When you purchased access to Achieve, you received a code needed to login to Achieve. When you log into Canvas you will see Macmillan Learning on the left navigation pane. This will take you to a screen where you will need your code for the first time you login. The activities on Achieve are for self-study to improve your understanding of the material and to assist you in optimizing your performance on the graded material which is all on the Canvas course account for BCH 3025. The electronic textbook is available to you at any time you have internet access without carrying a heavy book.

COURSE DESCRIPTION: Introducing biochemistry with emphasis on intermediary metabolism.

PREREQUISITE KNOWLEDGE AND SKILLS: Prereq: CHM 2200 and CHM 2200L (or preferably CHM 2210, CHM 2211 and CHM 2211L) with minimum grades of C

PURPOSE OF COURSE: The course should introduce each student to biochemical concepts and provide different mechanisms for each student to demonstrate to future admission committees or employers the ability to:

- Answer questions about biochemical concepts and facts.
- Critically read biochemical literature and communicate the finding to peers.
- Utilize the internet to find the most recent credible information concerning biochemical concepts and questions.

COURSE GOALS AND/OR OBJECTIVES: By the end of this course, students will:

1. Appreciate why the broad spectrum of biochemistry is important in research, medicine, agriculture, pharmaceuticals, and ethics.
2. Understand the basis for the molecular structure of different biochemical compounds.
3. Understand the biosynthesis of basic biochemical “building blocks”.
4. Understand the conformation, dynamics, and function of proteins.
5. Understand the generation and storage of metabolic energy.
6. Understand overall aspects of the integration of metabolic processes.
7. Have developed the skills to accumulate, integrate, and apply biochemical information in their own field of study.

INSTRUCTIONAL METHODS: Each chapter covered by the exams is presented in different formats. The textbook is your main source of information. For those who prefer to read the lecture, PowerPoint slides including the lecture notes can be downloaded. For the more audio learners there are narrated lectures with slides. Online more visual individual activities are available via the Achieve application. Each student has the material in several formats and can cover the material at a pace that is most comfortable for the individual. On average, two to four chapters will be introduced each week of the course. Short quizzes will be given as many of the chapters are introduced and will comprise 20% of the course grade. The quizzes are an incentive to read the chapters as they are scheduled for the course and to give a “preview” of the exam to come. An extra credit opportunity will be provided in the form of an optional term paper.

The chapter modules are organized by week with Monday being the first day of the week and Friday being the last day of the week.

Each module has a section “Beyond the Textbook” for those students who wish to venture beyond the material in the textbook.

COURSE POLICIES:

ATTENDANCE POLICY: BCH 3025 is completely online, but has strict due dates listed in the syllabus. Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at:

<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>

QUIZ/EXAM POLICY: Quizzes and exams use the Quiz tool on E-learning. The exams must be taken using Honorlock as described in the course technology section below.

MAKE-UP POLICY: There are no regularly scheduled makeup exams, quizzes, and no dropped scores. Reasons for makeup exams, quizzes, or assignments include illness, serious family emergencies, special curricular requirements (e.g., judging trips, field trips, professional conferences), military obligation, severe weather conditions, religious holidays, participation in official university activities such as music performances, athletic competition or debate, and court-imposed legal obligations (e.g., jury duty or subpoena). Any allowance will be arranged on a case-by-case basis. In addition to sending the instructor and TA a Canvas message concerning the needs for makeup work, it is highly recommended that you attend the next Biochemistry Chat in zoom room <https://uflphi.zoom.us/j/4742141397> on Wednesdays and Sundays at 3:00 PM Eastern time. It is often much easier to discuss face to face the reasons for a request than to rely solely on electronic messaging.

ASSIGNMENT POLICY: The Journal Club and the Biochemistry Treasure Hunt are required assignments with specific due dates listed in the syllabus. The Extra Credit Paper and Flawless Diamond activities are optional assignments but also with specific due dates.

COURSE TECHNOLOGY: Canvas will be used to present course material, to communicate, to post assignments, and to take quizzes and exams. The textbook can be purchased as an online subscription. An Achieve subscription can also be purchased to have access to online self-study materials that are very visual.

PROCTORED EXAMS

Honorlock will proctor your 4 exams this semester. Honorlock is an online proctoring service that allows you to take your exam from the comfort of your home. You do not need to create an account, download software, or schedule an appointment in advance. Honorlock is available 24/7, and all that is required is a computer, a working webcam/microphone, your id, and a stable internet connection.

To get started, you will need google chrome and download the [honorlock chrome extension](#).

When you are ready to complete your assessment, log into canvas, go to your course, and click on your exam. Clicking "launch proctoring" will begin the honorlock authentication process, where you will take a picture of yourself, show your ID, and complete a scan of your room. Honorlock will be recording your exam session through your webcam, microphone, and recording your screen. Honorlock also has an integrity algorithm that can detect search-engine use, so please do not attempt to search for answers, even if it's on a secondary device.

Honorlock support is available 24/7/365. If you encounter any issues, you may contact them through live chat on the [support page](#) or within the exam itself. Some guides you should review are [honorlock msrs](#), [student faq](#), [honorlock knowledge base](#), and [how to use honorlock](#). Good luck!

JOURNAL CLUB ASSIGNMENT:

WHAT IS AN ELECTRONIC JOURNAL CLUB? An electronic journal club is a presentation of a scientific paper on a topic of common interest to you and your audience using the media of a PowerPoint file. This assignment has many objectives:

- Encourage you to read the current literature in biochemistry – both the paper that you choose, and the paper chosen by your partner.
- Provide an opportunity for you to explain to peers the literature that you have read.
- Acquire editorial experience as you review the work of your partner.

- Demonstrate ability to follow detailed instructions for preparing a document explaining biochemical concepts.
- Understanding that an outstanding final product depends on a foundation of layers of effort that we call steps in this assignment. (One cannot skip to the end)

An outstanding journal club is a multistep process with each step building on the previous step. In practice one cannot skip the foundational steps and expect success. Mirroring the real world, in this assignment **each step must be completed by the deadline before the student is allowed to progress to the next step.**

The presentation includes

1. the data from the paper,
2. the authors interpretation of the data,
3. your critique of the work,
4. your assessment of what should be done next in the research field, and
5. a list of questions you want your audience to carefully consider.

WHY DO I WANT TO DO IT? Whether you are trying to decide what to do for a patient that does not fit into any treatment algorithm, or you are preparing research or a public policy proposal, you need to know the latest information available.

You not only need to know about the data, but you also need to be able to present the data and your ideas to your colleagues during the decision-making process.

BCH 3025 journal club is 40 points (10%) of your grade in this course.

HOW DO I FIND JOURNAL ARTICLES AND DECIDE WHICH ONE TO USE? If you are off campus, connect to UF Library Resources using the instructions in this link: <http://cms.uflib.ufl.edu/offcampus>.

PubMed and web of science are two databases very frequently used to quickly locate scientific papers of interest. To access PubMed with links to journal articles available in UF libraries go to **pubmed (with uf links)** or (**http://www.ncbi.nlm.nih.gov/sites/entrez?holding=ufhsclib**).

Different libraries at the University of Florida have on their homepages a variety of help features and tutorials to assist you in developing your skills using PubMed and web of science.

[Tips for Using PubMed](#)

Description: An editable version of a two-page handout on the very basics of PubMed.

Format: pdf

Subjects: PubMed

Date Last Revised: 11/2021

For this assignment you must choose an article as your primary source that has been published in the last 12 months in one of the following journals. Your article must be a primary research

article, and NOT a review article, meta-analysis, or commentary. Be sure to choose an article that has the following sections: Introduction, Methods, Results, and Discussion. Please choose your article from the following journals. Note that the name of the journal must be exactly as listed. For example, “Nature” is a good choice, but “Nature Communications” is not on the list of acceptable choices.

1. Science
2. Nature
3. Journal of Biological Chemistry
4. Trends in Biochemical Sciences
5. Journal of Nutrition
6. American Journal of Clinical Nutrition
7. New England Journal of Medicine
8. Pediatric Research
9. Journal of the American Medical Association
10. Journal of Animal Science
11. American Journal of Veterinary Research
12. American Journal of Botany
13. IEE Transactions on Biomedical Engineering

HOW SHOULD I GO ABOUT READING A SCIENTIFIC PAPER? Before submitting your paper for your journal club, it is very important that you obtain the paper and read the entire paper. Simply reading the abstract on PubMed and hoping that the paper can be obtained and will be understandable has caused many students significant grief in previous semesters.

Different people have different approaches to reading a paper. Suggestions can be found at the following resources:

1. “Reading a Scientific Article.”, North Central University
<https://ncu.libguides.com/researchprocess/readingscientificarticle>
2. “How to Read a Scientific Article”, Purdue University,
<https://www.lib.purdue.edu/sites/default/files/libraries/engr/Tutorials/Newest%20Scientific%20Paper.pdf>
2. “How to Read a Scientific Article”, Rice University,
(<http://www.owlnet.rice.edu/~cainproj/courses/HowToReadSciArticle.pdf>)

HOW DO I DECIDE WHAT TO PRESENT TO THE JOURNAL CLUB AUDIENCE? What is the take home message for my audience? How do I present it so that they remember it?

1. “5 Tips for Journal Club First Timers” – NIH Intramural Research Program
<https://irp.nih.gov/blog/post/2015/03/5-tips-for-journal-club-first-timers>
2. “Journal Club Tips”, Department of Pharmacology, University of Virginia School of Medicine(<https://pharm.virginia.edu/files/2014/03/JournalClubTips.pdf>)

HOW DO I PREPARE THE POWERPOINT SLIDES? The design of the PowerPoint presentation is very important in communicating your ideas to your audience. It is important to spend time developing your skills in this area. There are several websites that can assist you. A good one is from Penn State University entitled “Rethinking the Design of Presentation Slides: The Assertion-Evidence Structure” (<http://www.writing.engr.psu.edu/slides.html>). Some other good resources include:

1. Published paper from American Roentgen Ray Society, author Daffner, R. H. “On Improvement of Scientific Presentations: Using PowerPoint” American Journal of Roentgenology 2003; 181:47-49
(<http://www.ajronline.org/doi/full/10.2214/ajr.181.1.1810047>)
2. Published paper from The Scientist, author Bob Grant. “Pimp your PowerPoint” The Scientist, 2010; 24:76. <http://www.the-scientist.com/?articles.view/articleNo/28818/title/Pimp-your-PowerPoint/>
3. A talk available on YouTube entitled “Improve your PowerPoint” by Penn State University communications professor Michael Ally.
http://www.youtube.com/watch?v=d04w4vvByDI&feature=player_embedded
4. Tables and figures from the article should be included in your presentation. You may copy these directly from the article or you can create your own table with the information from the article. One method to copy tables and figures from the article is to select “print screen” and then paste directly into your PowerPoint. You can then crop the image in PowerPoint. You can also use the Snipping Tool on Windows computers or the Grab tool on Mac.

STEPS FOR COMPLETING JOURNAL CLUB ASSIGNMENTS ARE AS FOLLOWS: You will work as an Author of your parts of the assignment for the article you have chosen to present. After you have turned in the draft of your presentation, you will be grouped with one other student who will be your Editor. You will serve as editor for that student in return. Success will depend on the diligence of you and your partner.

You and your journal club partner will be assigned a group on Discussions to conduct journal club posting steps.

At the conclusion of all the steps for journal club assignment activities, you will be acquainted with both your article and the article of your partner.

Each Journal Club step must be completed before continuing on to the next step. **If you miss a step, you do not get points for that step, and you cannot continue the assignment and thus lose all points for the remaining steps.**

INSTRUCTIONS AND GRADING OF THE JOURNAL CLUB ASSIGNMENTS STEPS:

Step 1 (Due January 22, 2024, before 3:00 PM)- Authors must post the citation for your chosen journal club article.

1. Attach a Word document onto the “Post Article” assignment with the citation for the article. Review the tutorial for uploading an attachment when submitting an assignment. No points will be assigned, but this is a required step to continue the journal club assignment.
2. Your article must be a primary research article from one of the thirteen journals listed for this assignment. Your citation formatting must follow the Journal of Nutrition style, which uses International Committee of Medical Journal Editors (ICMJE) recommendations (<http://www.ncbi.nlm.nih.gov/books/NBK7282/>).
3. You can find additional instructions and a video tutorial on the Assignments page for Step 1.

Step 2 (Due February 05, 2024, before 3:00 PM)- Authors must post an outline of the journal club presentation.

Points for Step 2 = 5 points-

1. Attach a Word document onto the “Presentation Outline” assignment repeating the citation for the article and providing an outline of your intended PPT presentation. You can receive a maximum of 5 points for this step using the following criteria:
 - Rationale for choosing paper
 - Clear description of paper goals
 - Summary of the methods and experimental design
 - Clear description of results pertaining to each goal of paper
 - Summary of paper’s discussion
 - Critique of paper and suggestions for future work

Step 3 (Due February 26, 2024, before 3:00 PM)- Authors must post a draft of the journal club PowerPoint.

Points for Step 3 = 5 points-

1. Attach a PowerPoint file onto the “Draft PPT Presentation” assignment. You can receive a maximum of 5 points for this step using the following criteria:
 - Clarity of content

- Flow of information
- Slide Quality
- JC author's discussion of paper results
- JC author's suggestion for future work

Step 4 (Due March 04, 2024, before 3:00 PM)- After you have turned in the draft of your presentation, you will be grouped with one other student who will be your Editor.;

Points for Step 4 = -2 points-

1. After assignment to groups, attach the same PowerPoint draft file used in Step 3 onto the assigned Journal Club Group discussion board for access by your partner for their critique. You will receive 2 points for this step.

Step 5 (Due March 20, 2024, before 3:00 PM)- Editors must post a one-page single space final critique of their partner's draft journal club PowerPoint.

Points for Step 5 = -8 points-

1. Attach a Word document to "Final Critique" on the Assignments page. **This is the work that will be graded.**

2. Next attach the critique onto the assigned Journal Club Group discussion board to provide your partner final suggestions on improving their presentation. You can receive a maximum of 8 points for Step 5 using the following criteria:

- Discussion of the 5 areas of evaluation of PowerPoint draft
- Suggestions for Improvement

Step 6 (Due April 08, 2024, before 3:00 PM)- Authors must post their final PowerPoint presentation.

Points for Step 6 = -20 points-

1. Attach the PowerPoint file to "Final Presentation" on the Assignments page. The final presentation is submitted to the instructor only. You can receive a maximum of 20 points for this step using the following criteria:

- Rationale for choosing paper
- Clear description of paper goals
- Summary of the methods and experimental design
- Clear description of results pertaining to each goal of paper
- Summary of paper's discussion
- Critique of paper and suggestions for future work

- Flow of information
- Slide Quality

OVERVIEW OF JOURNAL CLUB PROJECT STEPS

Overview of Journal Club Project Steps							
	Description	Graded as	Points available	Where to submit	Comments for assignments submitted before deadline	Partial credit if submitted before deadline	If step is not completed/late
Step 1	Make Citation	P/F	0	Assignments tab for Step 1 before deadline	Citation must be formatted correctly and meet criteria to receive "P"	No	Cannot continue with steps 2-6, do not earn 40 points
Step 2	Make Outline	Points	5	Assignments tab for Step 2 before deadline	Outline must meet grading criteria to receive full "5"	Yes	Cannot continue with steps 3-6, do not earn 40 points
Step 3	Make PowerPoint	Points	5	Assignments tab for Step 3 before deadline	PowerPoint must meet grading criteria to receive full "5"	Yes	Cannot continue with steps 4-6 Journal club project, do not earn 35 points
Step 4	Share PowerPoint with Partner	Points	2	Discussion board for Step 4/5 before deadline	PowerPoint must be able to be accessed by partner <i>from discussion board</i> by deadline	No	Cannot continue with steps 5-6 Journal club project, do not earn 30 points
Step 5	Share Critique with Partner	Points	8	Assignments tab for step 5 before deadline	Critique must meet grading criteria to receive full "8"	Yes	Cannot continue with step 6 Journal club project, do not earn 28 points
		P/F	0	Discussion board for Step 4/5 before deadline	Critique must be able to be accessed by partner <i>from discussion board</i> by deadline	No	Cannot continue with step 6 Journal club project, do not earn 20 points
Step 6	Final PowerPoint	Points	20	Assignments tab for Step 6 before deadline	Final PowerPoint must meet grading criteria to receive full "20"	Yes	Do not earn 20 points

TREASURE HUNTS ASSIGNMENT:

WHY DO I WANT TO DO TREASURE HUNTS? When we have a question, we often “go online”. We might turn to Google, YouTube, a favorite app, PubMed, etc. The same is true for classes – even Biochemistry. A treasure hunt including one on the internet can lead to anything from treasure to frightful garbage on most subjects. So be careful. You will be using online sources to find important information for the rest of your professional life, so these skills are important to develop.

WHAT IS A TREASURE? You are assigned to four (4) treasure hunts. The treasure can be a video of a symposium presentation, a PowerPoint presentation of some new research result, a peer-reviewed article in a scientific journal, an original Ted talk – anything on the internet that **a biochemist would consider a treasure**. There are many study aids, tutorials, class lectures, Ted-Ed talks and textbook supplements on the internet that you may find useful for studying, but they are NOT treasures.

WHAT DOES THE TREASURE HUNT ASSIGNMENT REQUIRE? This class is divided into 4 sections with each section ending with an exam. The calendar at the end of the syllabus lists the detailed schedule of this course. During each of the four sections of the course, look for a treasure online that adds to the subject matter discussed. By the due date, you must post to the appropriate assignment tool, the URL to the treasure and an accompanying Word document using the following template:

- Title of treasure
- Who created the treasure including their qualifications?
- The class module(s) relevant to the treasure
- The important take home messages found in the treasure
- Why your classmates should view the treasure
- What you would change in the treasure if you had all the money and time needed

Each of the 4 treasures are worth 10 points. You will be graded on your recognition and choice of treasure and on the information, you provide in the accompanying Word document using the template presented above.

Due Date for Treasure Hunts:

- Monday, January 22, 2024, before noon: Treasure Hunt #1.
- Wednesday, February 07, 2024, before noon: Treasure Hunt #2.
- Thursday, March 07, 2024, before noon: Treasure Hunt #3.
- Friday, April 19, 2024, before noon: Treasure Hunt #4.

FLAWLESS DIAMOND OPTIONAL ACTIVITY FOR EXTRA CREDIT:

WHY DO A FLAWLESS DIAMOND ACTIVITY? It is hard to rank the value of treasures. Diamonds are among the most valuable jewels, but even they are of variable value. The Gemological Institute of America (GIA) has created scales for grading the clarity, the color, the cut and the carat of a diamond. When you look at their website (<http://www.gia.edu/gia-about/4Cs-Clarity>) you quickly notice that each category has many grades because it is hard to rank a collection of very valuable gems. But we all know that the sentimental value of diamonds for an individual often outweighs the scales of the gemologist. For example, the diamond my husband to be gave me more than 50 years ago is the most valuable diamond in the world no matter what any gemologist says. So, let's tackle a hard job and have some fun doing it. Everyone in class will post a biochemical treasure for an assignment in class. But which one is the flawless diamond – or the closest to the flawless diamond?

WHAT IS THE PROCEDURE FOR THE OPTIONAL FLAWLESS DIAMOND ACTIVITY? Using the same deadline as the class assignment, post your treasure to the discussion board "Treasure Hunt (Post your treasure here)". Include your name and Treasure #1 (Treasure #2, Treasure 3#, and Treasure #4 in succession). After reviewing all your colleagues' treasures, post your vote for the flawless diamond among all the treasures to the discussion board "Treasure Hunt (Vote for the flawless diamond here)". Include the name of the person who posted the original treasure and a discussion of why you chose that treasure as the flawless diamond. Your vote must be posted within 24 hours after the deadline for the original Treasure Hunt assignment.

Due Dates for Flawless Diamond:

- Tuesday, January 23, 2024, before noon: Flawless Diamond #1.
- Friday, February 09, 2024, before noon: Flawless Diamond #2.
- Friday, March 08, 2024, before noon: Flawless Diamond #3.
- Monday, April 22, 2024, before noon: Flawless Diamond #4.

EXTRA POINTS: If you decide to participate by posting both your original treasure to the discussion board “Treasure Hunt (Post your treasure here)” by the deadline for the original Treasure Hunt assignment and you post your vote by 24 hours after the deadline for the original Treasure Hunt assignment, you will receive one extra credit point. Four points might mean the difference in a letter grade when points are totaled at the end of the semester. It will be a way to study for the upcoming exam using the treasures that your classmates have found helpful to them. It will also be fun!

EXTRA CREDIT PAPER OPTIONAL ACTIVITY:

WHAT IS THE EXTRA CREDIT PAPER ACTIVITY? The extra credit paper assignment is an opportunity to earn up to 25 extra points in the course. Note that the extra credit paper assignment is optional, but once you sign-up for the extra credit paper, you cannot change your mind later. Read the expectations for the extra credit paper carefully before signing up to complete the extra credit.

WHAT ARE THE EXPECTATIONS FOR THE EXTRA CREDIT PAPER? You should develop a 10-20-page, double-spaced research-based paper on a topic you select from a list of options (Example: Folate and neural tube defects).

- Do not forget that this is a biochemistry class and the paper should focus on the biochemical aspects of the topic. The paper should be a scientific paper designed for an audience that has completed a biochemistry class. The paper should not be designed for the public or read like a website.
- Your paper should include an abstract, an introduction, a body, a conclusion, a list of references, and an appendix. You should define the problem/issue, indicate its significance, and review relevant literature that includes evidence that supports the arguments for and against the problem/issue. Please be sure to make your ideas, thoughts, arguments, theories, facts, or evidence very clear to the reader.
- You must document evidence with in-text citations, according to the format used by the Journal of Nutrition (<http://jn.nutrition.org/>). You should use peer-reviewed information for your references. References from internet sources should be used cautiously. If you copy a phrase or a sentence from another source, you must quote that source.
- Using the words of someone else is simply a form of academic dishonesty and will not be tolerated. The paper should be prepared solely for this class. Turnitin will be used to evaluate the originality of the paper as part of the grading process.

- After your references section, you should add an appendix that lists your top five citations. Give a short summary of each of the citations explaining why you chose that citation.

EXTRA POINTS AVAILABLE: Even though you can earn up to 25 points on this paper, it does not imply that you will receive all 25 points. There is a possibility that no points will be given if the reader gets the impression that the paper submitted does not include intelligent, well-organized, and thorough literature review discussions on the topic. If the paper is not of adequate quality and does not include the criteria listed above, you will be deducted 5 points from the total grade earned in class. To be graded, the extra credit paper must be turned into the Extra Credit Paper Assignment tool on the BCH 3025 homepage as a Word document attachment. Any papers submitted after 12 Noon of the due date or not submitted, will result in 0 points (your paper will not be graded) in addition to a reduction of 5 points from your total points earned in class. No late papers will be accepted.

EXTRA CREDIT PAPER PROCEDURE: If you are interested in this extra credit assignment, click on the Extra Credit Topic page listing more than 100 potential topics. Review all the topics available. Once you select a topic, you will need to sign up for the topic on the “Extra Credit Paper Sign-up” in Discussions. Before you sign-up, make sure that your topic is not already selected by another student. If the topic you were going to choose is already selected, then you will need to select a different topic. To sign up for the extra credit, post to Discussions. In your post, write the topic you selected. The post on the discussion board will serve as a contract between you and Dr. Borum that you will complete the extra credit assignment. Changing your mind after signing up for the extra credit paper or deleting your post is not an option after you sign up for the extra credit.

REQUEST FOR A TOPIC NOT LISTED: If you would like to write an extra credit paper on a topic not listed, you may submit a request to Dr. Borum via e-mail on Canvas. Your request must consist of a one-page summary of the paper you wish to write. The summary must be sent as a Word document attached to the e-mail. If approved, your topic will be added to the list of topics on the Extra Credit Topic page, and you will be assigned the topic.

ChatGPT and other AI assisted tools are becoming more and more important in our world. If you would like to have the opportunity to use it in this class, consider the **ChatCPT Assisted Extra Credit Paper** addressing a biochemical topic pertaining to metabolic homeostasis. The biochemistry of metabolic homeostasis is needed to produce the

desired phenotype of all life as we know it. It is an important determinant of the quality of our daily lives and impacts all fields involving living things. The topics will pertain to the biochemistry of homeostasis of energy metabolism in health and disease throughout the lifecycle for humans and any other living organism that interests the student author.

Many of us think that the recent advancement in use of large language models will change the way we write and interact with information. As with all powerful new tools, it can be beneficial or detrimental to us. Another option to the extra credit opportunity described above is the **ChatGPT Assisted Extra Credit Paper**. The deadlines and the number of points available are the same for both the traditional and ChatCPT assisted options. **The difference is that the ChatCPT assisted topic will be chosen by the student and the instructor together at a Biochemistry zoom chat.** You submit queries to ChatGPT concerning a topic related to the biochemistry of metabolic homeostasis. You will evaluate the output and extend the value of the information by adding your critical thinking and creativity to the discussion of the topic. You will submit the original queries, the ChatGPT output, and the file that presents your paper concerning the topic which includes a second required appendix evaluating how useful you found the output to be. Biochemistry zoom chats are available each week for interaction with the instructor.

Due Dates for the Optional Extra Credit Paper:

- **Monday, January 29, 2024, before noon:** Deadline to request an extra credit paper on a topic not listed.
- **Friday, February 02, 2024, before 12 Noon:** Deadline to complete extra credit contract in Discussions.
- **Friday, March 08, 2024, before 12 Noon:** Extra credit paper must be turned in to Assignments.

IF YOU WANT TO USE CHATGPT: ChatCPT and similar AI tools are not to be used for any written assignments in this course except for the optional ChatGPT Assisted Extra Credit Paper.

UF POLICIES:

Grades and Grade Points: For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Online Course Evaluation Process: 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/.

Absences and Make-Up Work: Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/

Academic Honesty: 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 (sccr.dso.ufl.edu/process/student-conduct-code/) specifies a number of 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 appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Software Use: All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

GETTING HELP:

Campus Helping Resources:

See the **Campus Resources Tab** in Canvas which provides access through the [Whole Gator](#) app to campus resources on many topics including mental health, physical health, academics, finances, relationships, substance use, and violence Prevention.

Services for Students with Disabilities:

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 their instructor and discuss their access needs, as early as possible in the semester.

ISSUES WITH DISTANCE DELIVERED COURSES: Each online distance learning program has a process for, and will make every attempt to Resolve, student complaints within its academic and administrative departments at the Program level. See <http://distance.ufl.edu/student-complaints> for more details.

GRADING POLICIES:

Grades will be calculated from the total points earned during the semester according to the following table.

Assignments and Quizzes	Points
Quizzes for Exam 1 section	20
Biochemistry Treasure Hunt #1	10
Exam 1	60
Quizzes for Exam 2 section	20
Biochemistry Treasure Hunt #2	10
Exam 2	60
Quizzes for Exam 3 section	20
Biochemistry Treasure Hunt #3	10
Exam 3	60
Quizzes for Exam 4 section	20
Biochemistry Treasure Hunt #4	10
Exam 4	60
Journal Club Project	40
Total Points	400
Possible points from Extra Credit Paper	25
Possible points from Finding the Flawless Diamond Activities	4
Points deducted if extra credit paper is requested, but not posted on time	5

The quizzes and Exams are mainly multiple choice and allow an average of 1 minute per question (For example an exam with 30 questions must be completed within 30 minutes).

Assignments are described in detail in documents linked to the course main page in Canvas.

GRADING SCALE:

Final Grade	Total Points
A	373-400
A-	360-372
B+	348-359
B	333-347
B-	320-332
C+	308-319
C	293-307
C-	280-292
D+	268-279
D	253-267
D-	240-252

There will be no curve in this course. Final grades will be simply calculated from the total accumulated points.

For information on current UF policies for assigning grade points, see the web page: catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/.

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/>.

COURSE SCHEDULE: SPRING 2024 COURSE SCHEDULE

(0) Big Exam; **(#)** Required and Graded; **(X)** Optional for Extra Credit

<u>Week 1</u>	
Monday – January, 08 2024	Introduction to course; – Module 1 (Chapter 1 in textbook) - The Foundations of Biochemistry Module 2 (Chapter 3 in textbook) - Amino Acids, Peptides, and Proteins
Wednesday January 10, 2024	Module 3 (Chapter 5 in textbook) - Protein Function
Friday – January 12, 2024	Module 4 (Chapter 6 in textbook) – Enzymes The deadline for quizzes for Module 1 - Module 4 are delayed to next Friday due to drop/add.
<u>Week 2</u>	
Monday – January 15, 2024	Have a safe and enjoyable MLK Day!
Wednesday January 17, 2024	Module 5 (Chapter 7 in textbook) - Carbohydrates and Glycobiology
Friday –, January 19, 2024	(#)Quizzes for Module 1, Module 2, Module 3, Module 4 and Module 5 must be completed online before 12 Noon
<u>Week 3</u>	
Monday – January 22, 2024	(#)Post Biochemical Treasure #1 by 12 noon (#)Authors must post journal club article before 3 PM (Step 1)
Tuesday – January 23, 2024	(X) Vote for Flawless Diamond #1 by 12 noon (optional for extra credit)
Wednesday January 24, 2024	(0) Exam 1 on Modules 1, 2, 3, 4, and 5 must be completed online via Honorlock between 7:00 AM and 10:00 PM.
Friday –, January 26, 2024	Module 6 (Chapter 8 in textbook) - Nucleotides and Nucleic Acids Module 7 (Chapter 9 in textbook) - DNA-Based Information Technologies
<u>Week 4</u>	

Monday – January 29, 2024	Module 8 (Chapter 10 in textbook) – Lipids (X) Deadline to request an extra credit paper on a topic not listed is noon.
Wednesday January 31, 2024	Module 9 (Chapter 11 in textbook) - Biological Membranes and Transport
Friday –, February 02, 2024	(#) Quizzes for Module 6, Module 7, Module 8, and Module 9 must be completed online before 12 Noon – (X) Extra Credit Contracts due before 12 Noon.
<u>Week 5</u>	
Monday – February 05, 2024	Module 10 (Chapter 12 in textbook) – Biochemical Signaling (#) Authors must post outline of journal club presentation before 3 PM (Step 2)
Wednesday February 07, 2024	(#) Quiz for Module 10 must be completed online before 12 Noon Post Biochemical Treasure #2 by 12 noon
Friday – February 09, 2024	(X) Optional opportunity- Post your vote for the Flawless Diamond #2 by 12 noon.
<u>Week 6</u>	
Monday – February 12, 2024	(0) Exam 2 on Modules 6, 7, 8, 9, and 10 must be completed online via Honorlock between 7:00 AM and 10:00 PM.
Wednesday February 14, 2024	Module 11 (Chapter 13 in textbook) – Introduction to Metabolism
Friday – February 16, 2024	(#) Quiz for Module 11 must be completed online before 12 Noon
<u>Week 7</u>	
Monday – February 19, 2024	Module 12 (Chapter 14 in textbook) - Glycolysis, Gluconeogenesis, and the Pentose Phosphate Pathway
Wednesday – February 21, 2024	Module 13 (Chapter 15 in textbook) – The Metabolism of Glycogen in Animals

Friday – February 23, 2024	(#) Quizzes for Module 12 and Module 13 must be completed online before 12 Noon
<u>Week 8</u>	
Monday – February 26, 2024	Module 14 (Chapter 16 in textbook) - The Citric Acid Cycle (#) Authors must post a draft of journal club PowerPoint by 3PM (Step 3)
Wednesday February 28, 2024	Module 15 (Chapter 17 in textbook) - Fatty Acid Catabolism
Friday –, March 01, 2024	Module 16 (Chapter 18 in textbook) - Amino Acid Oxidation and the Production of Urea
<u>Week 9</u>	
Monday – March 04, 2024	(#) Authors must post to the designated discussion Group pairing by 3PM the same file posted in Step 3 (Step 4) Module 17 (Chapter 19 in textbook) - Oxidative Phosphorylation
Wednesday March 06, 2024	(#) Quizzes for Module 14, Module 15, Module 16 and Module 17 must be completed online before 12 Noon
Thursday March 07, 2024	(#) Post Biochemical Treasure #3 by 12 noon
Friday – March 08, 2024	(X) Optional opportunity- Post your vote for the Flawless Diamond #3 by 12 noon (X) Extra Credit Papers due before 12 Noon
<u>Week 10</u>	
March 11- 15, 2024	Have a great Spring Break!
<u>Week 11</u>	
Monday – March 18, 2024	(0) Exam 3 on Modules 11, 12, 13, 14, 15, 16, and 17 must be completed online via Honorlock between 7:00 AM and 10:00 PM.
Wednesday March 20, 2024	(#) Editors must post critique of the draft journal club PowerPoint by 3 PM (Step 5)
Friday –	Module 18 (Chapter 21 in textbook) - Lipid Biosynthesis

March 22, 2024	
<u>Week 12</u>	
Monday – March 25, 2024	Module 19 (Chapter 22 in textbook) - Biosynthesis of Amino Acids, Nucleotides, and Related Molecules
Wednesday March 27, 2024	Module 20 (Chapter 23 in textbook) - Hormonal Regulation and Integration of Mammalian Metabolism
Friday – March 29, 2024	(#) Quizzes for Module 18, Module 19, and Module 20 must be completed online before 12 Noon
<u>Week 13</u>	
Monday – April 01, 2024	Module 21 (Chapter 24 in textbook)- Genes and Chromosomes
Wednesday April 03, 2024	Module 22 (Chapter 25 in textbook)- DNA Metabolism
Friday – April 05, 2024	(#) Quizzes for Module 21 and Module 22 must be completed online before 12 Noon
<u>Week 14</u>	
Monday – April 08, 2024	(#) Authors must post final PowerPoint presentation for Journal Club by 3 PM (Step 6)
Wednesday April 10, 2024	Module 23 (Chapter 26 in textbook)- RNA Metabolism
Friday – April 12, 2024	(#) Quiz for Module 23 must be completed online before 12 Noon
<u>Week 15</u>	
Monday – April 15, 2024	Module 24 (Chapter 27 in textbook) - Protein Metabolism

Wednesday April 17, 2024	Module 25 (Chapter 28 in textbook) - Regulation of Gene Expression
Friday – April 19, 2024	(#) Quizzes for Module 24 and Module 25 must be completed online before 12 Noon (#) Post Biochemical Treasure #4 by 12 noon
<u>Week 16</u>	
Monday – April 22, 2024	(X) Optional opportunity- Post your vote for the Flawless Diamond #4 by 12 noon.
Wednesday - April 24, 2024	(0) Exam 4 on Modules 18, 19, 20, 21, 22, 23, 24, and 25 must be completed online via Honorlock between 7:00 AM and 10:00 PM.
	No Final Exam – Have a great break!