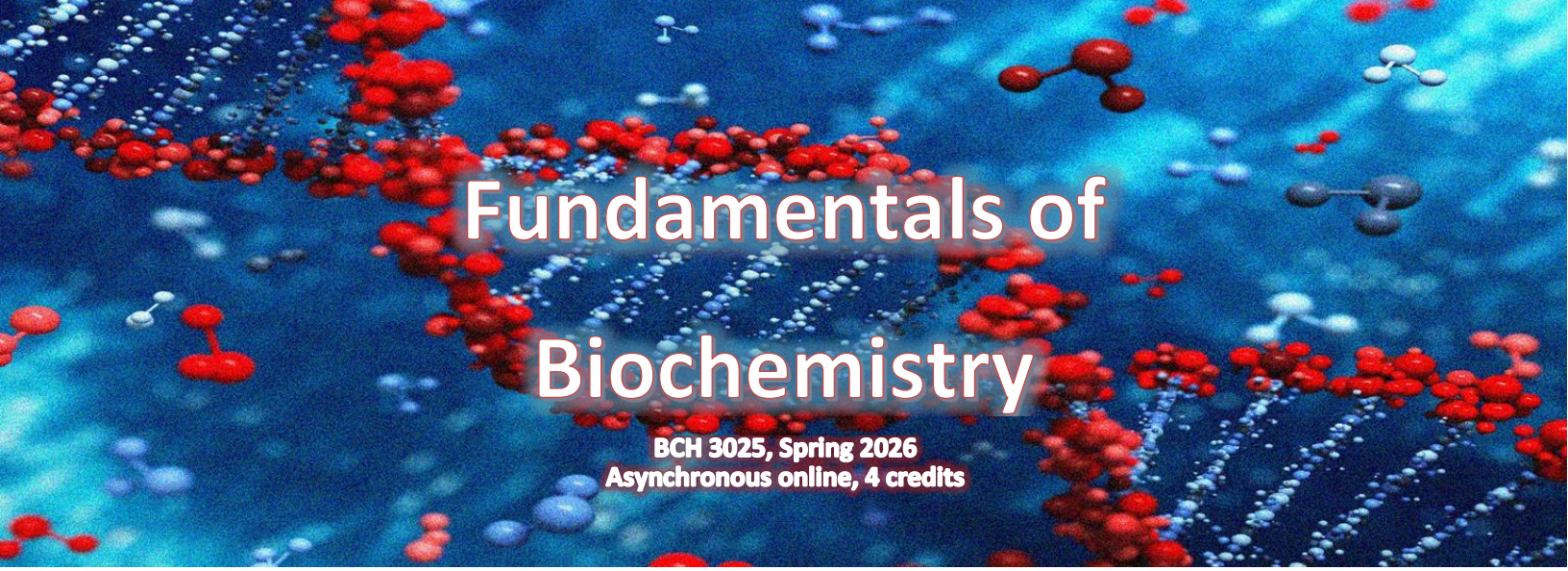


**Instructor – Caitlin McDermott, Ph.D.**

Preferred method of contact: Canvas mail

- Phone: 352-294-3855
- Email: caitlinmcdermott@ufl.edu

Zoom office hours:

- Tuesday & Thursday at 3PM via Zoom: https://ufl.zoom.us/j/99330981302

**TA – Jake Shine, Graduate Student in Food Science and Human Nutrition**

Preferred method of contact: email- jshine@ufl.edu

## Course Prerequisites

- Prerequisites - CHM 2200 and CHM 2200L (or preferably CHM 2210, CHM 2211 and CHM 2211L) with minimum grades of C.

## Course Description

- Introducing biochemistry with emphasis on intermediary metabolism.

## Course Learning Objectives

- **Connect Catalysis to Life** - Explain the role of catalysis in biological systems and how bioenergetics facilitates chemical reactions.
- **Identify Biochemical Structures** - Identify and describe the structure-function relationships of biochemical compounds.
- **Deconstruct Bioenergetics** - Deconstruct the process of bioenergetics within the context of energy production, storage and utilization.
- **Integrate Metabolism** - Integrate biochemical concepts to explain the role of metabolism in homeostasis.
- **Decipher Information Pathways** - Describe the interrelationships of DNA, different types of RNA, proteins, and different types of glycosylation or acylation in information pathways
- **Predict Phenotype Using Biochemistry** - Predict the effects of genetic and environmental factors on an organism's phenotype, using biochemistry principles.
- **Relate Biochemistry to Your Future** - Hypothesize how biochemistry will impact your future.

## Learning Materials and Supplies

- 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. This course requires access to the Achieve site. The Achieve site includes access to an ebook. Please note that this course will be participating in the UF All Access program. Login at the following website and Opt-In to gain access to your UF All Access course materials
- https://www.bsd.ufl.edu/AllAccess – UF All Access will provide you with your required materials digitally at a reduced price and the charge will be posted to your student account. This option will be available starting 1 week prior to the start of the semester and ending 3 weeks after the first day of class.
- When you purchased access to Achieve (available through UF Bookstore), 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 electronic textbook is available to you at any time you have internet access without carrying a heavy book. The required graded learning activities "Knowledge Check" and "Principle Based Problems" are also in Achieve and available from the Assignments tab.
- I appreciate that textbooks are expensive – including this one. However, the package deal of the electronic text and the many study materials is cheaper than purchasing the many pieces separately. Additional study aids based on the textbook material are provided to students in Canvas at no additional costs

## Instructor's Interaction Plan

- The best way to Contact the instructor is through Canvas email. We often use Canvas Mail or the Announcement tab to keep everyone updated. It is a good idea to log in to Canvas every day to see what is happening.
- Our zoom chat (office hours) on Tuesday and Thursday afternoons at 3:00 PM in zoom room https://ufl.zoom.us/j/99330981302 are important times for interaction and communication. We can discuss most any topic you desire. If you have a special request, we can often resolve it more quickly during the zoom chat using a private breakout room than using email threads. I encourage you to take advantage of attending our zoom chats.
- Our Teaching Assistant, Jake, will take the grading lead on the "Proposed Solution to a Biochemical Mystery" and initial questions should be addressed to him. The instructor will take the grading lead on all the other assignments. Of course, we both want to help you in any way we can.
- Expect an instructor response to email and Canvas message within 24-48 hours, during weekdays.
- Please do not wait until the weekend to complete assignments, as I may not be available to answer emails or messages as quickly.
- Expect instructor feedback for submitted assignments within one week past the assignment deadline.
- If you ever have questions or need clarification on instructor feedback, please message or attend office hours.
- I invite your feedback in both midterm and end-of-term GatorEvals and plan to continuously improve student experience within the course. Your opinion is highly valued.

## Required Technology & How to Obtain the Technology

- Required peripherals, such as speakers, a microphone, extended reality accessories (e.g., AR/VR/XR), or a headset are clearly specified.
- Links to all downloadable resources are provided. These resources include software and online tools, apps, plug-ins such as PDF Reader, media players, collaboration tools, social media, interactive multimedia apps, etc.
- Instructions are provided for how to access materials available through the institution's library or subscription services, including online journals or databases. When available, links are also provided.
- If publisher materials are required, clearly stated instructions for how to obtain and use any required access codes are provided.
    - 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!

## Required Technology & Digital Information Literacy Skills:

### Technical skills may include:

- Using the learning management system
- Using email with attachments
- Creating and submitting files in commonly used word processing program formats
- Downloading and installing software
- Using spreadsheet programs
- Using presentation and graphics programs
- Using apps in digital devices
- Using web conferencing tools and software

## Digital information literacy skills may include:

- Using online libraries and databases to locate and gather appropriate information
- Using computer networks to locate and store files or data
- Using online search tools for specific academic purposes, including the ability to use search criteria, keywords, and filters
- Analyzing digital information for credibility, currency, and bias (e.g., disinformation, misinformation)
- Properly citing information sources
- Preparing a presentation of research findings

## Communication Guidelines

- Use **Course Question Discussion Board**, for general course questions that others may have too.
- Use **Canvas Inbox (messaging tool)** for questions that are specific to your grades or submissions.
- **Email & phone correspondence** are for (1) setting a meeting time for office hours, (2) DRC accommodations; (3) emergency situations; or (4) highly sensitive situations.
- A respectful tone is used by all community members in all forms of communication.
- Written communication, both formal and informal, uses the official language of instruction rather than popular online abbreviations and graphic elements such as those sometimes used in social media.
- Video interactions reflect a respectful tone in verbal communications and body language.
- Spelling, punctuation, and grammar are correct.

### Technical Support

UF Computing Help Desk & Ticket Number: All technical issues require a UF Helpdesk Ticket Number. The UF Helpdesk is available 24 hours a day, 7 days a week. https://helpdesk.ufl.edu/ | 352-392-4357

## Weekly Course Schedule

| Week 1 | |
|---|---|
| **Wednesday**<br>January 14 | Introduction to course & **Module 1** (Chapter 1 in textbook):<br>The Foundations of Biochemistry |
| **Friday**<br>January 16 | **Module 2** (Chapter 3 in textbook):<br>**Amino Acids, Peptides, and Proteins** |

| Week 2 | |
|---|---|
| **Monday**<br>January 19 | Martin Luther King, Jr. Holiday |
| **Wednesday**<br>January 21 | **Module 3** (Chapter 5 in textbook):<br>Protein Function |
| **Friday**<br>February 23 | **Knowledge Checks and Principles Based Problems for Module 1, Module 2, and Module 3 due at 11:59PM.** |

| Week 3 | |
|---|---|
| **Monday**<br>January 26 | Post **Biochemistry in My World in 2035 Step 1** by **11:59PM**<br><br>**Module 4** (Chapter 6 in textbook): Enzymes<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 4** due at **11:59PM** |
| **Wednesday**<br>January 28 | **Module 5** (Chapter 7 in textbook): Carbohydrates and Glycobiology<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 5** due at **11:59PM** |
| **Friday**<br>January 30 | Post **Student's View into Biochemical Mysteries 1** by **11:59PM** |

| Week 4 | |
|---|---|
| **Monday**<br>February 2 | **Exam 1 on Modules 1, 2, 3, 4, and 5 must be completed online via Honorlock between 7:00AM and 10:00PM.** |
| **Wednesday**<br>February 4 | **Module 6** (Chapter 8 in textbook): Nucleotides and Nucleic Acids<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 5 & 6** due at **11:59PM** |
| **Friday**<br>February 6 | **Module 7** (Chapter 9 in textbook):<br>DNA-Based Information Technologies<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 7** due at **11:59PM** |

| Week 5 | |
|---|---|
| **Monday**<br>February 9 | **Module 8** (Chapter 10 in textbook): Lipids<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 8** due at **11:59PM** |
| **Tuesday**<br>February 10 | Authors must post **Proposed Solution to a Biochemical Mystery** Step **1** by **11:59 PM** |
| **Wednesday**<br>February 11 | **Module 9** (Chapter 11 in textbook):<br>Biological Membranes and Transport<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 10** due at **11:59 PM** |
| **Friday**<br>February 13 | **Module 10** (Chapter 12 in textbook): Biochemical Signaling<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 10** due at **11:59 PM** |

| Week 6 | |
|---|---|
| **Monday**<br>February 16 | Post **Student's View into Biochemical Mysteries 2** by **11:59 PM** |
| **Wednesday**<br>February 18 | **Exam 2 on Modules 6, 7, 8, 9, and 10 must be completed online via Honorlock between 7:00 AM and 10:00 PM.** |
| **Friday**<br>February 20 | **Module 11** (Chapter 13 in textbook): Introduction to Metabolism<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 11** due at **11:59 PM** |

| Week 7 | |
|---|---|
| **Monday**<br>February 23 | **Module 12** (Chapter 14 in textbook):<br>Glycolysis, Gluconeogenesis, and the Pentose Phosphate Pathway<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 12** due at **11:59 PM** |
| **Wednesday**<br>February 25 | Authors must post **Proposed Solution to a Biochemical Mystery Step 2** by **11:59 PM** |
| **Friday**<br>February 27 | **Module 13** (Chapter 15 in textbook):<br>The Metabolism of Glycogen in Animals<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 13** due at **11:59 PM** |

| Week 8 | |
|---|---|
| **Monday**<br>March 2 | Post **Biochemistry in My World in 2035 - Step 2** by **11:59 PM** |
| **Wednesday**<br>March 4 | **Module 14** (Chapter 16 in textbook): The Citric Acid Cycle<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 14** due at **11:59 PM** |
| **Friday**<br>March 6 | Editors must post **Proposed Solution to a Biochemical Mystery** Step **3** by **11:59 PM** |

| Week 9 | |
|---|---|
| **Monday**<br>March 9 | **Module 15** (Chapter 17 in textbook): Fatty Acid Catabolism<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 15** due at **11:59 PM** |
| **Wednesday**<br>March 11 | **Module 16** (Chapter 18 in textbook):<br>Amino Acid Oxidation and the Production of Urea<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 16** due at **11:59PM** |
| **Friday**<br>March 13 | **Module 17** (Chapter 19 in textbook): Oxidative Phosphorylation<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 17** due at **11:59PM** |

| Week 10<br>March 16-20: Enjoy Spring Break ☺ |
|---|

| Week 11 | |
|---|---|
| **Monday**<br>March 23 | Post **Student's View into Biochemical Mysteries 3** by **11:59PM** |
| **Wednesday**<br>**March 25** | **Exam 3 on Modules 11, 12, 13, 14, 15, 16, and 17 must be completed online via Honorlock between 7:00AM and 10:00PM.** |
| **Friday**<br>March 27 | Post **Biochemistry in My World in 2035 – Step 3** by **11:59PM** |

| Week 12 | |
|---|---|
| **Monday**<br>March 30 | **Module 18** (Chapter 21 in textbook): Lipid Biosynthesis<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 18** due at **11:59 PM** |
| **Wednesday**<br>April 1 | **Module 19** (Chapter 22 in textbook):<br>Biosynthesis of Amino Acids, Nucleotides, and Related Molecules<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 19** due at **11:59PM** |
| **Friday**<br>April 3 | **Module 20** (Chapter 23 in textbook):<br>Hormonal Regulation and Integration of Mammalian Metabolism<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 20** due at **11:59PM** |

| Week 13 | |
|---|---|
| **Monday**<br>April 6 | **Module 21** (Chapter 24 in textbook): Genes and Chromosomes<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 21** due at **11:59PM** |
| **Wednesday**<br>April 8 | **Module 22** (Chapter 25 in textbook): DNA Metabolism<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 22** due at **11:59PM** |
| **Friday**<br>April 10 | Authors must post **Proposed Solution to a Biochemical Mystery Step 4** by **11:59PM** |

| Week 14 | |
|---|---|
| **Monday**<br>April 13 | **Module 23** (Chapter 26 in textbook): RNA Metabolism<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 23** due at **11:59PM** |
| **Wednesday**<br>April 15 | **Module 24** (Chapter 27 in textbook): Protein Metabolism<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 24** due at **11:59PM** |
| **Friday**<br>April 17 | Post **Biochemistry in My World in 2035 – Step 4** by **11:59PM** |

| Week 15 | |
|---|---|
| **Monday**<br>April 20 | **Module 25** (Chapter 28 in textbook): Regulation of Gene Expression<br><br>**Knowledge Checks** and **Principles Based Problems** for **Module 25** due at **11:59PM** |
| **Wednesday**<br>April 22 | Post **Student's View into Biochemical Mysteries 4** by **11:59PM** |
| **Friday**<br>April 24 | Study day 😊 |

| Week 16 | |
|---|---|
| **Monday**<br>**April 27** | **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 Summer!!**

## Grading Policy

All graded assignments and quizzes are listed on the table below. All the graded assignments add up to 500 points that total 125% of your grade. Make-up work will be allowed according to University of Florida guidelines.

- Using 125% instead of 100% gives 20% grace for those times that you are not at your best. You can lose 100 points and still have 100% for the course.
- There will be no extra credit. It is very important to note that for the "Proposed Solution to a Biochemical Mystery" assignment, steps 2, 3, and 4 depend on the previous step and must be completed before the student can proceed to the next step.
- Missing a step means that credit will not be given for that step, and the student cannot receive credit for the remaining steps.

| Assignments and Quizzes | Points | Percent |
|---|---|---|
| **Formative Assessments** | **75** | **18.75** |
| **Knowledge Check Quizzes** | **(25)** | **(6.25)** |
| Knowledge Check Quizzes for Unit #1 Modules (Modules 1, 2, 3, 4, 5) | (5) | (1.25) |
| Knowledge Check Quizzes for Unit #2 Modules (Modules 6, 7, 8, 9, 10) | (5) | (1.25) |
| Knowledge Check Quizzes for Unit #3 Modules (Modules 11, 12, 13, 14, 15, 16, 17) | (7) | (1.75) |
| Knowledge Check Quizzes for Unit #4 Modules (Modules 18, 19, 20, 21, 22, 23, 24, 25) | (8) | (2.0) |
| **Principles Based Problems** | **(50)** | **(12.5)** |
| Principles Based Problems for Unit #1 Modules (Modules 1, 2, 3, 4, 5) | (10) | (2.5) |
| Principles Based Problems for Unit #2 Modules (Modules 6, 7, 8, 9, 10) | (10) | (2.5) |
| Principles Based Problems for Unit #3 Modules (Modules 11, 12, 13, 14, 15, 16, 17) | (14) | (3.5) |
| Principles Based Problems for Unit #4 Modules (Modules 18, 19, 20, 21, 22, 23, 24, 25) | (16) | (4) |
| **Exams** | **240** | **60** |
| Exam 1 | (60) | (15) |
| Exam 2 | (60) | (15) |
| Exam 3 | (60) | (15) |
| Exam 4 | (60) | (15) |
| **Student's View into Biochemical Mysteries** | **60** | **15** |
| Student's View into Biochemical Mysteries #1 (Modules 1, 2, 3, 4, 5) | (15) | (3.75) |
| Student's View into Biochemical Mysteries #2(Modules 6, 7, 8, 9, 10) | (15) | (3.75) |
| Student's View into Biochemical Mysteries #3 (Modules 11, 12, 13, 14, 15, 16, 17) | (15) | (3.75) |
| Student's View into Biochemical Mysteries #4 (Modules 18, 19, 20, 21, 22, 23, 24, 25) | (15) | (3.75) |

| **Proposed Solution to a Biochemical Mystery**<br>(Previous step must be completed before being allowed to go to the next step!) | **65** | **16.25** |
|---|---|---|
| Proposed Solution to a Biochemical Mystery Step 1 | (16.25) | (4.0625) |
| Proposed Solution to a Biochemical Mystery Step 2 | (16.25) | (4.0625) |
| Proposed Solution to a Biochemical Mystery Step 3 | (16.25) | (4.0625) |
| Proposed Solution to a Biochemical Mystery Step 4 | (16.25) | (4.0625) |
| **Biochemistry in My World in 2035** | **60** | **15** |
| Biochemistry in My World in 2035 Step 1 | (15) | (3.75) |
| Biochemistry in My World in 2035 Step 2 | (15) | (3.75) |
| Biochemistry in My World in 2035 Step 3 | (15) | (3.75) |
| Biochemistry in My World in 2035 Step 4 | (15) | (3.75) |
| Total | 500 | 125 |

## Grading Scale

| Final Grade | Points/Percentage |
|---|---|
| A | 93-100 |
| A- | 90-92 |
| B+ | 87-89 |
| B | 83-86 |
| B- | 80-82 |
| C+ | 77-79 |
| C | 73-76 |
| C- | 70-72 |
| D+ | 67-69 |
| D | 63-66 |
| D- | 60-62 |

BCH3025 grading scale is presented above. See the current UF grading policies for more information.

## Academic Policies and Resources

Updated University of Florida Policies and Resources can be found at UF Syllabus Policy Links - Online Course Syllabi - University of Florida