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CHMY 123.00: Introduction to Organic and Biochemistry

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CHMY 123: Intro to Organic and Biochemistry

Instructor: Victoria Gifford

Office Hours: TBA

- It is preferred that all meetings be conducted through Zoom
- Meeting Link: [Zoom Office Hours](#)
- Meeting ID:

Email: victoria.gifford@mso.umt.edu

Class Meeting Time: MWF 9 – 10a

Class Room: ISB (Interdisciplinary Science Building) 110

- [ISB Building Map](#)
- [Campus Map](#)

Teaching Format

This course will be a blended course model. There will be opportunities for in-person learning, but you can choose to take the course in an entirely remote format. This course has 2 portions: a lecture and a recitation.

Lecture: CHMY123 – 00B

The lecture portion of the course will be taught in a “flipped” format. Pre-recorded lectures will be posted on Moodle for students to view on their own time. In-class time will be used to answer questions and work through practice problems. In order to limit in-person contact, you must choose one of the following options for class attendance:

- Attend in-person class only on Mondays
- Attend in-person class only on Wednesdays
- Attend in-person class only on Fridays
- Do not attend any in-person classes

During the scheduled class time, students that are attending class remotely can join a live Zoom meeting. Keep in mind attendance is **not** mandatory. Even if you sign-up to come to an in-person class, you are not required to attend every Monday, but you may **not** attend class on a different day.

A maximum of 25 students can opt to attend in-person class per day.

Recitation: CHMY 123 – Section 01, 02, 03, or 04

Recitation is a class that meets once per week for 1 hour. The recitations are an opportunity to practice the written portions of the class material. Students will have the option to attend recitations in-person or complete them remotely.

A worksheet will be posted to Moodle each week for recitation. You are expected to either print the recitation or bring your computer to class to access it. Upon completion of the recitation, you will take a short Moodle quiz. The Moodle quizzes will be available from Monday 10:00am MST – Tuesday 11:59pm MST. In order to take a quiz, you will need a password. You can receive this password by showing your TA your completed recitation.

For remote students, you must complete your recitation and submit it to your TA through Moodle to receive the quiz password. Recitations are due by 2:00pm MST.

You must register for one of the recitation sections in addition to CHMY123-00B. More information on how recitations will be graded is given below.

*Please note that recitation is **not** the accompanying lab for CHMY123. If you are required to take the organic/biochemistry lab, you will need to register for CHMY124.

Course Description

CHMY 123 Introduces the student to “Organic Chemistry” through the study of the nomenclature (naming compounds), chemical properties and physical properties of simple organic compounds. From this background we will focus on those organic compounds that are found in biological structure, their polymerization into large molecules like proteins and nucleic acids and the metabolic function and information transfer that characterizes life as we know it “Biochemistry”.

Learning Outcomes

1. Mastery of systematic nomenclature for basic organic compounds.
2. Mastery of intermolecular interactions in terms of define the structure of organic and biomolecules and how that dictates the function of organic and biomolecules.
3. Familiarity with Acid/Base ionization of functional groups with specific emphasis on amino acids, proteins, and nucleic acids to show structure/function impacts.
4. Familiarity with thermodynamics and kinetics as it pertains to enzyme catalyzed reactions.
5. Familiarity with oxidation-reduction reactions and their role in metabolism including energy requiring and energy yielding steps in metabolism.
6. Oxidation of organic substrates as coupled to the production of chemical energy in biological systems will be covered.
7. Biochemical mechanisms of information transfer will be explored (replication, transcription, and translation).

Pre-requisites and Co-requisites for CHMY 123

A grade of “C-” or better in CHMY 121 or permission of the instructor. CHMY 124 is the Introduction to Organic & Biochemistry Lab course that accompanies CHMY123. Most majors that require CHMY 123 also require CHMY 124, which is listed as a co-requisite for that reason.

Course Materials

- Text Book: Fundamentals of General, Organic and Biological Chemistry. 8th Edition by McMurry, Ballantine, Hoeger and Person, Pearson Education Inc., 2017.
 - CHMY 123 is included in the bookstore's Inclusive Access Program. This gives you access to your required course materials, including an e-copy of the textbook, by the first day of class at the discounted rate the bookstore has negotiated on your behalf. Your student account has already been charged this discounted rate. If for any reason you decide to purchase your materials elsewhere you can opt-out of this program and will receive a refund to your student account. A loose-leaf paper copy of the textbook is also available in the University of Montana Bookstore for a deeply discounted rate or directly through Pearson (with free shipping) for \$44.99.
- Molecular Model Kit: CHMY 123 model kit, available in UM bookstore.
 - Recommended, not required

Lecture Notes: The lecture notes/powerpoints for each week will be posted on Moodle.

Study Guides

Study Guides will be posted on Moodle before each exam. Exams are based on the new material covered from the previous test but the very nature of the chemical sciences is that this knowledge is cumulative.

Recitations

Recitation exercises are model-based exercises followed by a 10-pt Moodle quiz. You may use your textbook, class notes and model kit to recitation for the recitation exercises.

There are twelve 10-point quizzes. The best ten quizzes will contribute to a total of 100 possible points from the recitations. Completion of more than ten recitations can contribute up to 20 points of extra credit for your grade.

Recitation is not a lab.

Homework

Homework problems will be assigned for each week using the Pearson Mastering site. It will be included in your grade and is graded by completion (i.e. if you receive a score of 70% or higher on your homework, you will receive full credit for completing that assignment). Your 3 lowest homework scores will be dropped.

Midterm Exams

Exams will consist of 2 parts: an online Moodle quiz and a written portion.

The online Moodle quiz is typically 25 questions. Help sheets, periodic tables, calculators and any other electronic devices should not be used on the exams. Midterms are worth 80 points each and only your top 3 scores will be included in your grade (for a total of 300 points).

The assignments for the written portions will be posted to Moodle. Written portions must be submitted to Moodle no later than 11:59pm MST one week after the Exam date. Due dates are in the schedule at the end of the syllabus. Each written portion is worth 20 points and only the top 3 scores will be included in your grade (for a total of 60 points).

Exam Disputes

You are welcome to contest questions or grading on midterm exams. Disputes can be turned in to Moodle and can be submitted for 1 week after the exam.

Final Exam

The final exam is comprehensive, worth 100 pts, and cannot be dropped. The final exam will be available as a Moodle quiz during the schedule final exam time: 8 – 10am; Wednesday November 25th

Grading

Best 3 Midterm Exams	240 pts
Best 3 Written Exams	60 pts
Best 10 Recitation Quizzes	100 pts
Homework (3 drops)	50 pts
Final Exam	100 pts
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Total	550 pts

Letter grades will be assigned using the traditional 90-80-70-60; A-B-C-D format. The use of + and – grading is at the discretion of the professor.

Getting Help with CHMY 123

- Visit your professor's office hours!
- check the TRIO website to find out if you qualify for TRIO assistance <http://www.umt.edu/trioss/apply.php#Eligibility>
- Names of private tutors can be found through the Office of Student Success <http://www.umt.edu/oss/>

Student Conduct and Academic Honesty

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available at <http://www.umt.edu/student-affairs/dean-of-students/default.php>

Student assignments will be regularly screened for plagiarism. Any plagiarized work will be dealt with as per recommended in the Student Conduct Code.

Students are particularly advised that plagiarism – representing someone else's work as the student's own without evidence of independent contribution - and misconduct during examination fall under items 1 and 2 of the student conduct code. The majority of CHMY 123 students are honest and responsible. As academic misconduct may affect those students, please be advised that I do enforce the Student Conduct Code in order to protect the honest students from academic misconduct.

Disability Modifications

Students with disabilities are strongly encouraged to contact Disability Services for Students (DSS) in the Lommasson Center room 154, phone (406) 243-2243 and (406) 243-4216. Any student in this course with disability, which may prevent the student from fully demonstrating his or her abilities, should contact the instructor and DSS as soon as possible so necessary accommodations can be discussed to ensure full participation.

Registration Dates

The official summer registration deadlines and dates can be found at the following link: [Fall 2020 Registration Dates](#)

- Drop a course
 - *After September 9th at 5p*: no refund will be given
 - *After October 21th at 5p*: a W will appear on transcripts
 - *After November 18th at 5p*: a WP/WF will appear on transcripts

COVID-19 Accommodations

Extensions on midterm exams and recitations will be given with adequate notification for excused class absences. The dropped exams, recitations, and homeworks are used in the event of an excused missed assignment. You will **not** receive additional drops for any excused absences. It is advised that you save dropped assignments in case you experience an emergency.

Keep in mind that many of your classes are remote and there will more communication via email. **You are responsible for keeping track of announcements made during lectures and through emails.** If you miss an assignment or deadline because you failed to read a class email, you will not receive leniency or extensions. I strongly encourage you to find an effective method to keep track of class announcements and your class deadlines.

COVID-19 Precautions

To help mitigate the spread of Covid-19, the following precautions will be taken:

- If the University of Montana cancels all in-person class, this course will change to an entirely remote format.
- All in-person classes will involve proper social distancing procedures including:
 - Assigned seating
 - A minimum 6-ft distance between all students
 - Required masks
 - You may only attend assigned class times
 - You are strongly discouraged from touching their face or mask while in the in class. If you do, you must immediately wash your hands.
- Review the University of Montana policies and suggestions surrounding Covid-19. They can be found at the following link: https://www.umt.edu/coronavirus/coronavirus_faqs.php
- If you are experiencing any symptoms of Covid-19, *stay home*. You are capable of completing this class with no loss of points remotely.
- Keep in mind that your behavior and social patterns outside of class can make you more likely to come in contact with Covid-19. Please be conscientious of your social interactions and practice social distancing and good hygiene outside of the classroom.

Technology Requirements

Students are expected to be familiar with computers and the internet. Students are responsible for their own software and computer equipment maintenance and setup as recommended by the University of Montana.

(<https://www.umt.edu/umonline/services-and-support/student-support.php>)

With a blended teaching format, computers will be necessary to access course materials.

- Students must be able to use and access their Moodle and UMBox accounts.
- Students must be able to download and review posted course materials prior to laboratory sessions.

- Class materials will be in the format of mp4 video files, pdfs, Microsoft power points, and Microsoft word documents.
- Students are expected to have a “back-up plan” if personal computers become compromised.
 - The University of Montana maintains several computer labs on campus:
<http://www.umt.edu/it/support/computerlabs/default.php>

Technical Support:

- For questions regarding your NetID or password, UMConnect email account, or for technical computer assistance:
 - Call the IT Central Help Desk at (406) 243-HELP (4357), 8am - 5pm, Monday-Friday
 - Email itcentral@umontana.edu.
- For technical support for UMOOnline and Moodle:
 - Call the UMOOnline Support Desk, 8am - 5pm, Monday through Friday at (406) 243-4999
 - Email umonline-help@umontana.edu.
- Links to other technical support resources for students can be found at the following link:
<https://www.umt.edu/it/support/>

Lecture Schedule

The lecture schedule given in the calendar is subject to change based on the pace of lecture.

Date	Day of the Week	Topic
Week 1		
8/19	Wed	Intro Lecture (no in-person class)
8/21	Fri	Intro to Organic/Biochemistry (no in-person class)
Week 2		
8/24	Mon	Chapter 12 – Saturated Hydrocarbons
8/26	Wed	Chapter 12 – Saturated Hydrocarbons
8/28	Fri	Chapter 13 – Unsaturated and Aromatic Hydrocarbons
Week 3		
8/31	Mon	Chapter 13 – Polymers and Macromolecules
9/2	Wed	Chapter 13- Polymers and Macromolecules
9/4	Fri	Review
Week 4		
9/7	Mon	LABOR DAY (no in-person class)
9/9	Wed	Exam 1 (no in-person class)
9/11	Fri	Chapter 14 – Alcohols and Ethers
Week 5		
9/14	Mon	Chapter 14 – Alcohols and Ethers
9/16	Wed	Chapter 14 – Phenols and Thiols *Exam 1 written portion due at 11:59pm
9/18	Fri	Chapter 15 – Aldehydes and Ketones
Week 6		
9/21	Mon	Chapter 15 – Aldehydes and Ketones
9/23	Wed	Chapter 17 – Carboxylic Acids and Esters
9/25	Fri	Chapter 17 – Carboxylic Acids and Esters
Week 7		
9/28	Mon	Chapter 16 – Amides and Amines

9/30	Wed	Review
10/2	Fri	Exam 2 (no in-person class)
Week 8		
10/5	Mon	Chapter 14 - Stereochemistry
10/7	Wed	Chapter 20 - Carbohydrates
10/9	Fri	Chapter 20 – Carbohydrates *Exam 2 written portion due at 11:59pm
Week 9		
10/12	Mon	Chapter 23 - Lipids
10/14	Wed	Chapter 25 – Amino Acids and Proteins
10/16	Fri	Chapter 25 – Amino Acids and Proteins
Week 10		
10/19	Mon	Chapter 19 - Enzymes
10/21	Wed	Chapter 26 – Nucleotides and Nucleic Acids
10/23	Fri	Review
Week 11		
10/26	Mon	Exam 3 (no in-person class)
10/28	Wed	Chapter 21 - Bioenergetics
10/30	Fri	Chapter 22 - Glycolysis
Week 12		
11/2	Mon	Chapter 22 – The TCA Cycle **Exam 3 written portion due at 11:59pm
11/4	Wed	Chapter 26 – Biosynthesis of Proteins
11/6	Fri	Chapter 27 – DNA Replication and the Genetic Code
Week 13		
11/9	Mon	Review (no in-person class)
11/11	Wed	VETERAN'S DAY (no in-person class)
11/13	Fri	Exam 4 (no in-person class)
Week 14		
11/16	Mon	Final exam review (no in-person class)
11/18	Wed	Final exam review (no in-person class)
11/20	Fri	*Exam 4 written portion due at 11:59pm

Recitation Schedule

Date	Recitation
8/24	Recitation 1 – Intro to CHMY 123
8/31	Recitation 2 - Hydrocarbons
9/7	No recitations
9/14	Recitation 3 – Intro to Functional Groups
9/21	Recitation 4 – Functional Groups 1
9/28	Recitation 5 – Functional Groups 2
10/5	Recitation 6 – Intro to Biomolecules
10/12	Recitation 7 – Stereoisomerism and sugars
10/19	Recitation 8 – Amino Acids and Proteins
10/26	Recitation 9 – Intro to Metabolism
11/2	Recitation 10 – Carbohydrate Metabolism
11/9	Recitation 11 – DNA and Protein Biosynthesis
11/16	Recitation 12 – Final Exam review