Course Syllabus

| ✎ **Edit**

Course Objectives

- Survey key molecular and cellular features shared by all organisms on earth, revealing how life can be understood in physical and chemical terms.
- Begin to develop intuition and analytical tools to think about life quantitatively and molecularly.
- Introduce several key, universal systems that are shared across organisms including serine proteases, hemoglobin, glycolysis/gluconeogenesis, the Citric Acid Cycle, the Electron transport chain, and ATP synthase
- In this course, we will emphasize developing reasoning and skills over memorizing facts.

People

- Mike Harms (lecture; prefers discord, harms@uoregon.edu)
- Laurel Pfeifer-Meister (lab instructor; prefers discord, lpfeife1@uoregon.edu)
- Matt Nardoci (GE, prefers discord, mnardoci@uoregon.edu)
- Rose Al-Saadi (GE, prefers discord, ralsaadi@uoregon.edu)
- Mikala Capage (Biology Tutor, discord or **mcapage@uoregon.edu) (mailto:mcapage@uoregon.edu))**
- Angelica Mejia (Biology Tutor, discord or **amejia7@uoregon.edu (mailto:amejia7@uoregon.edu))**
- Marlee Odell (Biology Tutor; discord or marleeo@uoregon.edu)
- Jiayi Yin (Biology Tutor; discord or **jyin5@uoregon.edu) (mailto:jyin5@uoregon.edu))**
- Sonja Zolnoski (Biology Tutor; discord or sonjaz@uoregon.edu)

Textbook

- Pratt & Cornely *Essential Biochemistry* (4th edition, though 2nd and 3rd also work). Online material is not required.

Remote Philosophy

- Trust students to take initiative for their own learning.
- Provide multiple opportunities per week for interactions with instructors.
- Make synchronous content strongly encouraged, but not required.
- Be organized, clear, and consistent.
- Do not try to artificially limit student access to outside material: embrace that students will have access to the Internet and their peers, just as they will throughout their careers.
- Have many opportunities to get small numbers of points.

Summary of class components

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Graded components

Component	Points	Number	Total	% points
Pre-class quiz (*low score dropped)	2	26-1*	50	5%
Post-class work	5	27	135	13.5%
Midterm	200	1	200	20%
Final	300	1	300	30%
Prelab	5	7	35	3.5%
Lab report	20	8	160	16%
Lab puzzles	20	6	120	12%
		TOTAL	1,000	100%

Ungraded Components

- Asynchronous material (pre-class videos and reading)
- Synchronous class time
- Homework sets

Getting Help

- At any time, post non-personal questions about scheduling or science on the #help channel on discord. If you have the question, no doubt someone else has it too. The instructors will do their best to answer quickly.
- For questions about grades and personal issues, please email Mike or Laurel.
- Office Hours: see help session **page** or look for zoom links #general on discord

Platforms

Zoom

- We will use Zoom as our video client for class sessions.
- To access the zoom sessions, you must log in with your uoregon.edu email address.
- Zoom breakout sessions:

- These will have, at most, four per group.
  - Groups will be randomly assigned, unless you request specific partner(s).

  - You may request a specific group. To do so, please send me a message on canvas with the subject "BI281H Group Request". The body of the message should just be (up to) four uoregon email addresses corresponding to who you'd like to group. Please only send one request per group.

Discord

- We will use discord for text chat. This will allow:
  - In-class polls
  - Chats between zoom breakout rooms.
  - A standing #help channel for student questions
  - A consistent and easy point-of-contact between students and instructors.
- We will post a link to the server as a canvas announcement at the beginning of the term.
- We will cross-post official announcements on #general and canvas.
- When using discord:
  - Please post questions and answers on #class-help
  - Free free to create your own channels and peer-to-peer chats.
  - Post away! This helps build our class community.
  - Please keep things positive and helpful. The instructors reserve the right to moderate content and (as a last resort) ban users.
  - Please do not distribute the server link to people outside the class.
- No grades or information requiring a UO login will be posted on discord.

Canvas

- All assignments will be posted and turned in on canvas.
- We will cross-post official announcements on discord #general as announcements on canvas.
- The points posted on Canvas are the official point totals. If you think there has been a mistake with your points, please contact Mike or Laurel.

Grading

- Anyone receiving 90% or more of the points will receive an A, 80%-90% a B, etc. We may curve the course, but this will only improve your grade from the baseline above.
- **Late policy: late work will not be accepted.** (This is because we immediately post keys for each assignment when the due date closes).

Community

This class is governed by the UO community standards.

- Respect the dignity and essential worth of all individuals.
- Promote a culture of respect.
- Respect the privacy, property, and freedom of others.
- Reject bigotry, discrimination, violence, or intimidation of any kind.
- Practice personal and academic integrity and expect it from others.

Students with Disabilities

If you have a documented disability and anticipate needing accommodations in this course, please make arrangements to meet with Mike soon. Please bring a notification letter from the Accessible Education Center (http://aec.uoregon.edu/) outlining your approved accommodations. In particular, if remote-learning will be an issue, please let me know as soon as possible so I can work with you.

Cheating

You are expected to do your own work. Cheating, plagiarism and any other form of academic dishonesty will not be tolerated. Group work is encouraged throughout this class, however, the work you turn in should be your own interpretation of the group discussion. Exactly copying text and/or graphs is not permitted. Please refer to the University of Oregon Student Conduct Code (https://policies.uoregon.edu/vol-3-administration-student-affairs/ch-1-conduct/student-conduct-code) .

Course Summary:

Date	Details	
Thu Oct 1, 2020	📝 **Post-class #1** (https://canvas.uoregon.edu/courses/162750/assignments/946921)	due by 10am
Fri Oct 2, 2020	📝 **Pre-class Quiz #2** (https://canvas.uoregon.edu/courses/162750/assignments/931530)	due by 9:30am
Sat Oct 3, 2020	📝 **Post-class #2** (https://canvas.uoregon.edu/courses/162750/assignments/946918)	due by 10am
Mon Oct 5, 2020	📝 **Pre-class Quiz #3** (https://canvas.uoregon.edu/courses/162750/assignments/931518)	due by 9:30am
	📝 **Lab 1 Report- Life at the Molecular Scale** (https://canvas.uoregon.edu/courses/162750/assignments/952188)	due by 11:59pm
	📝 **#1: General chemistry meets biology** (https://canvas.uoregon.edu/courses/162750/assignments/931550)	due by 11:59pm

Recent Announcements

Labs this week/upcoming deadlines
(https://canvas.uoregon.edu/courses/162750/discussion_topics/783115)
I wanted to remind everyone that this week we will be having optional in person labs for those of you that signed ...

Posted on: Nov 9, 2020 at 12:27pm

for class today
(https://canvas.uoregon.edu/courses/162750/discussion_topics/782798)
Handout for class today. https://canvas.uoregon.edu/files/9723150/download?download_frd=1

Posted on: Nov 9, 2020 at 9:02am

Two Reminders: Prelab and Survey for in person Lab
(https://canvas.uoregon.edu/courses/162750/discussion_topics/778738)
1). Don't forget the pre-lab is due tomorrow at 9am. 2). Please fill out the survey letting me know whether you...

Posted on: Nov 2, 2020 at 8:55am

Syllabus **here (https://canvas.uoregon.edu/courses/162750/assignments/syllabus)** .

Staff contact and Help sessions **here (https://canvas.uoregon.edu/courses/162750/pages/staff-contact-and-help-sessions)** .

P&C page numbers for 4th edition. 2nd & 3rd edition numbers in parentheses.

Pre-class video: V (link to video)

Quiz: quiz to be done before class starts

Post-class material: A (post-class assignment); W (worksheet from class); R (recorded class session)

Date	Topic	P&C	Pre-class video	Quiz	Post-class ma

		reading			
9/28	No class	---	---	---	---
9/30	Introduction	---	---	---	**A (https://canvas**
10/2	Molecular driving forces	10-12,25-32	**V (https://youtu.be/7RFcniQSepM)**	**Q (https://canvas.uoregon.edu/courses/162750/quizzes/175125)**	**A, (https://canva** **(https://uoregon** **startTime=16010** **(https://canvas.**
10/5	Acids & Bases	33-41 (2.3)	**V (https://youtu.be/7cmpIufiKVc)**	**Q (https://canvas.uoregon.edu/courses/162750/quizzes/175113)**	**A (https://canva** **YXQ6F64AXGA** **(https://canvas.** **(https://canvas.**
10/7	Amino acids	89-96	**V (https://youtu.be/ejgmcMAjaDw)**	**Q (https://canvas.uoregon.edu/courses/162750/quizzes/175138)**	**A (https://canva** **(https://uoregon** **K_) ,W (https://c** **(https://canvas.**
10/9	Protein structure	96-103	**V (https://youtu.be/fxr7v0rcoFE)**	**Q (https://canvas.uoregon.edu/courses/162750/quizzes/175116)**	**A (https://canva** **(https://docs.go** **(https://docs.go** **(https://uoregon** **o_M61hClqEac1**
10/12	Protein folding	104-108	**V (https://youtu.be/5Mq5ihkreXw)**	**Q (https://canvas.uoregon.edu/courses/162750/quizzes/175115)**	**A (https://canva** **(https://canvas.** **(https://canvas.** **(https://uoregon**
10/14	Protein recognition	170, 261-263 (175,	**V (https://youtu.be/IYE_agixRb0)**	**Q (https://canvas.uoregon.edu/courses/162750/quizzes/175134)**	**A (https://canva** **(https://canvas.** **(https://canvas.** **(https://uoregon**

		267-269)			
10/16	Enzymes I: catalysts	154-165 (159-170)	[V (https://youtu.be/2lhBXKEgjag)](https://youtu.be/2lhBXKEgjag)	[Q (https://canvas.uoregon.edu/courses/162750/quizzes/175111)](https://canvas.uoregon.edu/courses/162750/quizzes/175111)	**A (https://canva** **(https://canvas.** **(https://canvas.** **lhLimQpWCJ5rl**
10/19	Enzymes II: mechanism of serine protease	166-175 (171-179)	—	[Q (https://canvas.uoregon.edu/courses/162750/quizzes/175127)](https://canvas.uoregon.edu/courses/162750/quizzes/175127)	**A (https://canva** **(https://canvas.** **(https://canvas.** **sUPqb_YseBBE** **(https://harmsm**
10/21	Enzymes III: Michaelis Menten analysis	183-194 (189-200)	[V (https://youtu.be/f92AZ4JfjM0)](https://youtu.be/f92AZ4JfjM0)	[Q (https://canvas.uoregon.edu/courses/162750/quizzes/175124)](https://canvas.uoregon.edu/courses/162750/quizzes/175124)	**A (https://canva** **(https://canvas.** **(https://canvas.** **discussions/dis** **2E8XPTRa88sO**
10/23	~~Enzymes IV: regulation~~ Enzymes from 30,000 feet.	~~195-206 (200-211)~~	—	[Q (https://canvas.uoregon.edu/courses/162750/quizzes/175130)](https://canvas.uoregon.edu/courses/162750/quizzes/175130)	**A (https://canva** **(https://canvas.** **(https://uoregor** **5km0MQxsCgW** **(https://canvas.** **(https://canvas.** **(https://canvas.**
,10/26	Review session	--		[Q (https://canvas.uoregon.edu/courses/162750/quizzes/188879)](https://canvas.uoregon.edu/courses/162750/quizzes/188879)	**A (https://canva** **(https://uoregor** **,W (https://canv**
10/28	MIDTERM (release at 9:30 am, due 9:30 am 10/29)				

10/30	Hemoglobin cooperativity	122-132 (121-131)	**V (https://youtu.be/iJwg66gt6Qo)**	**Q (https://canvas.uoregon.edu/courses/162750/quizzes/175117)**	**A (https://canva (https://uoregor ,W (https://canv (https://canvas.**
11/2	Hemoglobin allostery	122-132 (121-131)		**Q (https://canvas.uoregon.edu/courses/162750/quizzes/175139)**	**A (https://canva LocvMqoESMjH (https://canvas.(discussions/dis**
11/4	Cytoskeleton (Structure and Motor Proteins)			**Q (https://canvas.uoregon.edu/courses/162750/quizzes/175137)**	**A (https://canva discussions/dis yPMgzRFPmjwY**
11/6	Membrane proteins	240-248 (246-255)			**A (https://canva (https://uoregor qJWvHKhpSyJl discussions/dis**
11/9	Signaling	258-268 (267-277)		**Q (https://canvas.uoregon.edu/courses/162750/quizzes/175131)**	**A (https://canva**
11/11	REDOX review	385-388 (15.1)		**Q (https://canvas.uoregon.edu/courses/162750/quizzes/175123)**	**A (https://canva**
11/13	Sugar I: glycolysis	329-340 (13.1)		**Q (https://canvas.uoregon.edu/courses/162750/quizzes/175142)**	**A (https://canva**
11/16	Sugar II: gluconeogenesis	341-347 (13.2)		**Q (https://canvas.uoregon.edu/courses/162750/quizzes/175118)**	**A (https://canva**
11/18	Citric Acid Cycle	359-379		**Q (https://canvas.uoregon.edu/courses/162750/quizzes/175133)**	**A (https://canva**

		(14.1-3)			
11/20	Citric Acid Cycle	374-379 (14.3 & 17.1)		**Q (https://canvas.uoregon.edu/courses/162750/quizzes/175136)**	
11/23	OXPHOS I: Electron transport	384-397 (15.1-2)		**Q (https://canvas.uoregon.edu/courses/162750/quizzes/175129)** **(https://canvas.uoregon.edu/courses/162750/quizzes/175126)**	**A (https://canva**
11/25	OXPHOS II: Electron transport	398-404 (15.3-4)		**Q (https://canvas.uoregon.edu/courses/162750/quizzes/175129)**	**A (https://canva**
11/27	Thanksgiving, no lecture	---			---
11/30	OXPHOS III: ATP Synthase			**Q (https://canvas.uoregon.edu/courses/162750/quizzes/175121)**	**A (https://canva**
12/2	Photosynthesis	410-421 (16.1-2)		**Q (https://canvas.uoregon.edu/courses/162750/quizzes/175114)**	**A (https://canva**
12/4	Photosynthesis	422-429 (16.3)		**Q (https://canvas.uoregon.edu/courses/162750/quizzes/175112)**	**A (https://canva**
12/9	FINAL: Release at 10 am on W 12/9 ; close at 12 pm 12/10	---	---	---	---