

# ***BI 281H Honors Biology I: Biochemistry and Cell Physiology***

Fall 2019 Lab Syllabus and Schedule, University of Oregon

## **Course Personnel**

Lab Instructor: **Dr. Laurel Pfeifer-Meister**  
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Lecture Instructor: **Dr. Emily Beck**  
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## **Lab Description**

In this lab course, you will explore the key principles of biochemistry and cell physiology. Our hope is that you will gain a better understanding of the lecture material by encountering it from a different, and often “hands on,” perspective. We are not trying to train you in research techniques, though you will be introduced to some. Rather, the material presented in lecture will be reinforced and elaborated upon through the manipulation of biological materials and models. You will get the most out of all of the activities if you approach them with questions in mind. Thus, the labs include many questions designed to prompt additional questions from you. This process of posing questions and finding solutions is an important part of the scientific method. So, when you are working on the labs, remember that it is much more important to try to understand what

you are doing, while you are doing it, than to mindlessly collect data.

## **Learning Outcomes**

Upon successful completion of this course, you should:

- Understand the 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.
- Understand some common lab techniques used to study biochemistry.
- Apply quantitative reasoning and analysis to biological science problems.

## **Lab Format**

Though the exercises in this manual are called “labs,” they involve not only measurements and analyses of biological materials, but models, computer simulations, computer-based problem analysis, and hypothetical data. In this way, some of the sessions will be “tutorials.” Lab handouts describe the exercises for each week, give some conceptual background relevant to the exercises, and pose questions pertaining to the problems being addressed. We expect that you will have read and have tried to understand the material in the lab handout when you arrive at your session each week. Short pre-lab homework assignments are designed to motivate you to read and think about the lab exercises for that day. At the beginning of each class the lab will be briefly introduced, and key concepts and practical issues will be stressed.

Students will then perform the activities with assistance from the faculty and TAs. Generally, students work together in pairs, but collaborations involving larger groups sometimes occur.

### How to succeed in this class

- Attend and participate actively in all labs.
- Ask questions and seek help when you need it (that's what we are here for).
- Prior to coming to lab, read the lab handout in its entirety (as well as any other assigned reading). Don't try to answer the pre-lab questions 5-minutes before class starts.
- As you proceed with the exercises, complete the written questions as you go. This is advantageous for two reasons: you'll understand what you are doing, as you do it, and your lab report will be nearly complete when you finish the session. The idea is to avoid having to reconstruct the important concepts from a bunch of incomprehensible data the night before the lab report is due.
- Get together in small study groups regularly to go over key concepts (this will also help you with the midterms and final). Try to do this without referring to the lab, book or your notes. This will let you know where the gaps in your knowledge are. There is no better way to learn than teaching others. To help facilitate this, I have made the weekly lab 'puzzles' open note and open friend.
- Don't get bogged down in the details, but instead ask yourself what is the big picture and how can I apply these concepts.

### Assignments, Grading Policy, and Academic Integrity

Lab exercises, most of which include a pre-lab assignment, a lab report, and a 'puzzle' based on the exercises and concepts of the lab will account for 34.6% of your overall BI281H grade; the remaining 65.4% comes from pre-lecture quizzes, midterms and the final exam. **Pre-labs** are worth 5 points (4% of overall grade) and are due at the beginning of your lab session. These will not be accepted late. **Lab reports** are worth 20 points each (16% of overall grade)

and are usually due at the beginning of the lab session the following week. See the Lab schedule for those deadlines. Reports must be complete, legible, and written in your own words. Even though lab reports are graded and submitted individually, we expect and encourage you to cooperate with your partner and colleagues in preparing your reports. In addition, you should consult with your instructors during the lab session and at office hours if you have questions. 10% will be deducted each day an assignment is late, except in cases of approved emergencies. **Lab puzzles** are another opportunity for you to demonstrate what you learned during the previous week—these can be found on Canvas and are worth 20 points each and are graded on a continuous scale (12% of your grade). The lowest quiz score will be dropped. These will be open on Canvas after class on Friday and will be due by 9 am the following Tuesday. Once you begin the puzzle you will have 120 minutes to complete it, but you may use your notes and classmates to help. The first week of class I will also ask you to take an **Assessment** that will be worth 10 points for completeness but not correctness (1% of your grade). The purpose is to gauge the knowledge level of the class at the start of the term. I will not be able to associate individual student scores, but instead will be given a class average. Please answer these questions to the best of your ability without looking up answers. Finally, 1.6% of your lab grade will be based on actively participating and engaging with the material and being respectful to the instructors and your fellow classmates. Point values (note this class is out of 1000 points) and due dates are listed in the Lab Schedule table for each assignment.

**Lab Courtesy.** Please arrive to lab on time. Late arrivals distract me and the other students. Use your laptop/phones only for class activities. Ask questions if you did not hear or understand something. As an incentive there is a small participation component to your overall lab grade.

Class rosters are provided to us with your legal name. We will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the quarter (or before) so that we may address you properly.

Open inquiry, freedom of expression, and

respect for differences are fundamental to a comprehensive and dynamic education. We are committed to upholding these ideals by encouraging the exploration, engagement, and expression of divergent perspectives and diverse identities. Classroom courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. Our classroom is a learning environment, and as such should be a safe, inclusive and respectful place. Being respectful also includes using preferred pronouns for your classmates. Disrespecting fellow students as well as combative approaches, tones and/or actions are not acceptable. Please make me aware if there are classroom dynamics that impede your (or someone else's) full engagement.

**Crises happen.** If you are having problems that are interfering with your ability to do the work in this class, please let me know promptly. I am willing to make arrangements when the need is real and when you have done your best to deal with the situation in a timely manner. If you must miss a lab session and cannot attend a different section for that week (valid reasons include verifiable medical emergencies, essential travel, or family emergencies), you may arrange to use data from another student in the class to complete the lab report on your own. Make this request in writing to me (lpfeife1@uoregon.edu) ahead of time.

**Academic integrity.** We expect students to complete assignments and exams in a manner consistent with academic integrity as outlined in the Student Conduct Code: <https://policies.uoregon.edu/vol-3-administration-student-affairs/ch-1-conduct/student-conduct-code>. This includes cheating (“any act of deception by which a student misrepresents or misleadingly demonstrates that the student has mastered information on an academic exercise that the student has not mastered”), and plagiarism (“using the ideas or writings of another as one’s own.”) I have a zero tolerance policy for academic dishonesty. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures.

**Discrimination and Harassment:** Any student who has experienced sexual assault, relationship violence, sex or gender-based bullying, stalking, and/or sexual harassment may seek resources and help at [safe.uoregon.edu](http://safe.uoregon.edu). To get help by phone, a student can also call either the UO’s 24-hour hotline at 541-346-7244 [SAFE], or the non-confidential Title IX Coordinator at 541-346-8136. From the SAFE website, students may also connect to Callisto, a confidential, third-party reporting site that is not a part of the university. Students experiencing any other form of prohibited discrimination or harassment can find information at [respect.uoregon.edu](http://respect.uoregon.edu) or [aaeo.uoregon.edu](http://aaeo.uoregon.edu) or contact the non-confidential AAEO office at 541-346-3123 or the Dean of Students Office at 541-346-3216 for help.

**Reporting:** I am a Student-Directed Employee. As such, if you disclose to me, I will respond to you with respect and kindness. I will listen to you, and will be sensitive to your needs and desires. I will not judge you. I will support you. As part of that support, I will direct students who disclose sexual harassment or sexual violence to resources that can help. I will only report the information shared to the university administration when you as the student requests that the information be reported (unless someone is in imminent risk of serious harm or is a minor). Please note the difference between ‘privacy’ and ‘confidentiality.’ As a Student-Directed Employee I can offer privacy because I am not required to report certain information to the university. However, I cannot be bound by confidentiality in the same way that a counselor or attorney is. Confidential resources such as these means that information shared is protected by federal and state laws. Any information that I as a student-directed employee receive may still be accessed by university or court proceedings. This means, for example, that I could still be called as a witness or required to turn over any related documents or notes that I keep.

Please note also that I am required to report all other forms of prohibited discrimination or harassment to the university administration. Specific details about confidentiality of information and reporting obligations of employees can be found at [titleix.uoregon.edu](http://titleix.uoregon.edu). UO employees, including faculty, staff, and GEs, are mandatory reporters of child abuse. Child abuse pertains to

individuals who are under the age of 18. This statement is to advise you that your disclosure of information about child abuse to the instructor may trigger my duty to report that information to the designated authorities.

## Campus resources to support your learning

### Tutoring and Academic Engagement

**Center:** drop-in math and writing support in addition to tutoring, study skills support, and Class Encore. Located on the 4th Floor Knight Library (541) 346-3226, [engage@uoregon.edu](mailto:engage@uoregon.edu), <https://engage.uoregon.edu/services/>

**Counseling Center:** call anytime to speak with a therapist who can provide support and connect you with resources. Located on the 2nd Floor of the Health Center (541)346-3227

**Accessible Education Center:** UO is working to create inclusive learning environments. I believe strongly in creating inclusive learning environments. If there are aspects of the instruction or design of this course that result in barriers to your participation, please notify me as soon as possible. You are also encouraged to contact the Accessible Education Center. If you are not a student with a documented disability, but you would like for us to know about class issues that will impact your ability to learn, we encourage you to come visit during office hours so that we can strategize how you can get the most out of this course. Located on the 1st Floor of Oregon Hall (541) 346-1155, [uoac@uoregon.edu](mailto:uoac@uoregon.edu)

### Center for Multicultural Academic Excellence:

CMAE's mission is to promote student retention and persistence for historically underrepresented and underserved populations. CMAE develops and implements programs and services that support retention, academic excellence, and success at the UO and beyond. Located on the 1st Floor of Oregon Hall (541) 346-3479, [cmace@uoregon.edu](mailto:cmace@uoregon.edu)

**UO Access Shuttle** is an on-campus ride service provided at no cost to students with conditions that limit mobility. More informa-

tion and a sign-up form can be found on the parking & transportation department website: <https://parking.uoregon.edu/content/access-shuttle>.

**Safe Ride:** Safe Ride is an assault prevention shuttle that works to provide free, inclusive, and accessible alternatives to traveling alone at night for UO students, faculty, and staff. They are a schedule-ahead service and riders can (1) call once we open to schedule a ride with a dispatcher or (2) leave a voicemail on the day of their ride request. They do not call riders ahead of time to confirm due to capacity constraints, but riders are always welcome to call us to double-check that their ride was scheduled (541-346-7433 ext 2; [pages.uoregon.edu/saferide](https://pages.uoregon.edu/saferide))

Operating hours:

Fall & Winter Term

Sun-Thu: 6pm-12am

Fri-Sat: 6pm-2am

Policy and rules: 1. They are a schedule-ahead service, they do not call ahead, and they can only wait for riders for 5 minutes at their pick-up time and location. 2. They only give rides to groups of 3 or fewer to prioritize groups that are at higher risk. 3. They are a free service and do not accept tips.

## Office Hours

All office hours will be held in *Klamath 21*. Please also feel free to email us for an appointment.

Monday 2:00-3:00 pm; Hope Healey  
3:00-4:00 pm; Emily Beck

Tuesday 12:00-1:00 pm; Rach Allison  
4:00-5:00 pm; Laurel Pfeifer-Meister

Wednesday 12:00-1:00 pm; Anna Kulawiec  
4:00-5:00 pm; Acadia DiNaro

Thursday 12:00-1:00 pm; Alina Salagean

Friday 11:00 am-12:00 pm; Frances Conable

## Lab Schedule

\* C = online submission on Canvas; L = paper submission at the beginning of lab

- Week 1 (10/1-10/3) NO LAB this week.  
**Due:** Nothing.
- Week 2 (10/8-10) Amino Acids  
**Due:** Assessment by 12 pm 10/7 (**C; 10 pts.**)  
Pre-lab 1 (**L; 5 pts.**)  
**NO puzzle** this week.
- Week 3 (10/15-17) Protein Structure  
**Due:** Pre-lab 2 (**L; 5 pts.**)  
Lab 1 Report (**L; 20 pts.**)  
Lab 1 Puzzle 9 am 10/15 (**C; 20 pts.**)
- Week 4 (10/22-24) Enzyme Activity  
**Due:** Pre-lab 3 (**L; 5 pts.**)  
Lab 2 Report (**L; 20 pts.**)  
Lab 2 Puzzle by 9 am 10/22 (**C; 20 pts.**)  
**Midterm** 7 pm WIL 100 **10/23**
- Week 5 (10/29-31) Enzyme Kinetics  
**Due:** Pre-lab 4 (**L; 5 pts.**)  
Lab 3 Report (**L; 20 pts.**)  
Lab 3 Puzzle by 9 am 10/29 (**C; 20 pts.**)
- Week 6 (11/5-7) Cooperativity and Allostery  
**Due:** Pre-lab 5 (**L; 5 pts.**)  
Lab 4 Report (**L; 20 pts.**)  
Lab 4 Puzzle by 9 am 11/5 (**C; 20 pts.**)
- Week 7: (11/12-14) Membrane Permeability  
**Due:** Pre-lab 6 (**L; 5 pts.**)  
Lab 5 Report (**L; 20 pts.**)  
Lab 5 Puzzle by 9 am 11/12 (**C; 20 pts.**)  
**Midterm** 7 pm WIL 100 **11/13**
- Week 8 (11/19-21) Intermediary Metabolism  
**Due:** Pre-lab 7 (**L; 5 pts.**)  
Lab 6 Report (**L; 20 pts.**)  
Lab 6 Puzzle by 9 am 11/19 (**C; 20 pts.**)
- Week 9 (11/26-28) **No Lab**; Happy Thanksgiving  
Lab Report 7 due in lecture at 10 am 11/25 (**20 pts.**)  
Lab 7 Puzzle by 9 am 11/26 (**C; Replace low score**).

Week 10 (12/3-5) Yeast Respiration.  
**Due:** Pre-lab 8 (**L; 5 pts.**)  
Lab 8 Report due in lecture 12/6 (**20 pts.**).

Week 11 (**12/9**) **Final Exam** 10:15 Monday in McKenzie 240C