Bi 211 General Biology I: Cells
Information Sheet and Syllabus for Summer Quarter 2023

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Lab Instructor: Molly Jud  mjud@uoregon.edu
Lab Preparator: Misty McLean-Schurbon  mistym@uoregon.edu
Office hours: M-R after lecture
Office hours: R after lab

Important notes about BI 211:
• Attendance is mandatory. This class will be taught in a flipped format, so attendance is very important. Missing class disadvantages you as well as your group and so we are strict about attendance.
• Our class will communicate through the course Canvas site. All assignments will be located there. Announcements and emails are archived there and automatically forwarded to your UO email, and can even be set up to reach you by text. Check and adjust your settings under Account > Notifications. For one-on-one communication please come to office hours or use your UO email account to email me at jprikryl@uoregon.edu.
• Posting course material including videos, lecture notes, problems, and solutions, on any platform that is not officially affiliated with the course is prohibited and will be treated as academic misconduct, reported to the Dean of Students Office, and penalized with an F grade in the course (even retroactively). If you have questions about what is appropriate and what is not please ask, ignorance will not be an acceptable defense.
• The work you turn in this term must be original (ie not copied from a previous term or from other students)

Student Learning Outcomes for BI 211 General Biology I: Cells

In this first course of the general biology sequence, we study biological processes from a molecular and cellular prospective. These concepts are central to understanding all other areas of biology. All organisms must accomplish two major functions: 1) extract energy from their environments to build and maintain their bodies, and 2) reproduce themselves. We start by studying the four types of biological macromolecules that build organismal bodies: carbohydrates, lipids (e.g., fats), proteins and nucleic acids (e.g., DNA). We then examine how cells obtain from the environment the building blocks for constructing these macromolecules and the energy for manipulating them to carry out body functions. Next, we examine reproductive functions, beginning with the two types of cell division, mitosis and meiosis. From there we study genetics, how traits pass from parent to offspring, starting with the structure and replication of DNA followed by how genes code for proteins. Finally, we look at the genetic basis of inheritance, including Mendelian genetics, pedigree analysis and the genetics of complex traits. Many of these topics are taught using a case-study approach, mostly using examples of genetic diseases in humans. BI 211 is a prerequisite for all the other general biology courses in the sequence (BI 212, BI 213, and BI 214).
The goals for BI 211 falls into three categories:
(1) to learn the foundational **concepts** related to cellular and molecular biology.
(2) to develop **skills** in analytical thinking that will serve students in natural science classes.
(3) to develop **career competencies** that are vital to success in any field.

**Concept-based goals:**
1. Biological macromolecules: To describe the chemical structures and major functions of the four major types of large biological molecules that make up all living organisms.
2. Energy Harvest Pathways: To understand energy harvest pathways, including cellular respiration, fermentation and photosynthesis, and their relevance to human disease.
3. Mitosis and Meiosis: To describe and illustrate chromosomal and cellular events during the various stages of both mitosis and meiosis, with a focus on their roles in cancer and Down Syndrome.
4. Gene Expression: To understand and describe the major processes involved in gene expression, including the mechanisms of protein synthesis, comprising transcription and translation, and how they are controlled to determine phenotype.
5. Mendelian Genetics: To understand the basis of transmission genetics and solve problems using Mendel’s first and second laws; to analyze genetic pedigrees.

**Skill-based goals:**
1. To develop competency in the basic terminology and methodologies used in the biological sciences.
2. To learn the process of scientific inquiry and its applications.
3. To learn how to learn about biology.
4. To learn to communicate knowledge, ideas and reasoning clearly and effectively in oral and written forms.

**Career Competencies:**
In the natural sciences, we often define our education by the content we learned, the facts we know. But this is only one aspect of what you gain from your coursework, and arguably not the most important. After all, a lot of the knowledge you need for your career you learn on the job and a growth mindset dictates that what we know is not static but continues to evolve as our life trajectory changes.

Equally important to success are the competencies you develop, what you learn to do. Competencies are not readily apparent on your transcript, and they are not often explicitly emphasized in courses, but they are of vital importance to employers and to maintaining a growth mindset. If you can express how your education has allowed you to develop the competencies employers want, you will have a substantial advantage in interviews, on entrance essays, and when writing your resume. So, what are the competencies that employers want, and how will this class help you develop them?

Many, many, online sites discuss career competencies, sometimes referred to as Job Skills. These are generally expressed as variations on the same major themes. We will focus on the National Association of Colleges and Employers (NACE) Career Readiness Competencies. According to a 2019 survey of 172 employers, the competencies that employers’ rate as most essential for career readiness are:

1. Critical thinking/problem solving (4.66)
2. Teamwork/collaboration (4.48)
3. Professionalism/work ethic (4.41)
4. Oral/written communications (4.30)
5. Digital technology (3.84)
6. Leadership (3.65)
7. Career management (3.38)
8. Global/multi-cultural fluency (2.78)

1=Not essential, 2=Not very essential, 3=Somewhat essential, 4=essential, 5=Absolutely essential

As you progress through this class please keep in mind that learning to maintain focus on difficult tasks, solve complex problems, navigate group dynamics, express yourself clearly and professionally, manage your time so you can complete work by its due date, and identify how you fit into the greater scientific community, are just as important as the content you learn, and more transferable to the various avenues your life will take.

Course Prerequisites

Students taking Bi 211 need a basic competency in math and chemistry and should have successfully completed at least one college level chemistry course.

Course materials

Course Packet including the Labs and Practice Problems will be provided for you on paper and on Canvas. All other resources will also be available online through the course Canvas site.

Course Format

Videos: All videos should be accessed through canvas and are due at 8:00am, before class on the due dates.

The course content will be delivered in 15-40 min videos. The videos have embedded questions that will encourage you to stay engaged and think deeply about the content.

Guidelines for videos:

Give yourself time to watch them, you will need it to answer the embedded questions.
You must answer each question before moving on in the video, you may replay parts of the video before the question but you must not skip forward. Though it’s possible (with some effort) to skip forward to the answer, then go back to answer the question, this is cheating and will result in an F grade in the class. Your navigation through the videos is recorded.
You can view the videos as many times as you like but you will only be allowed to answer the embedded questions once, the first time you watch the video, so please make sure you are in a space to focus on the content during your first viewing.
**Lectures:** Monday-Friday, 9:00-10:50 in 111 Lilis Business Complex  
Attendance is mandatory. 
Please arrive to lecture and lab on time and stay until class is over. 
Please be engaged. Using your cell phone, tablet, or computer to check email, Facebook, surf the web etc. is inappropriate.  

Lectures will include activities that help you to actively engage with the material. These activities will be done collaboratively with a small group of students discussing the problem together for a few minutes before discussing it as a whole class. Your active participation will help you to understand the material and better prepare you for assessments. We will have graded assessments at the end of each lecture that covers course content with a focus on the video content due that day. 

Your application of two principles will help you learn biology:  

**Learning is done by the learner.** In other words, the structure of the class helps identify the important concepts and skills, organizes the material, provides practice, and encourages learning, but only students themselves, by putting in effort on a continuing (and not binge) fashion, can actually do the learning. 

**The speaker is doing the learning.** In a lecture, it is the lecturer who, during preparation, is learning the material, not necessarily the people listening. On the other hand, when explaining one’s answer on an iClicker question, the person who is doing the talking is doing the learning about the material. One of the most effective ways to master the material for this class is to engage in conversations with other students, faculty, and staff. You will have the opportunity to do this through group-work, and in office hours. In addition, you might find it very helpful to form study groups with your peers in which you discuss class content and work through problems together. 

The single biggest difficulty students have in general biology is solving the kinds of problems presented in problem sets and exams. These are similar to the kinds of questions that biologists ask; they generally can’t be solved by memorization of facts, but instead require the application of facts to novel situations. We will give you time to work through the practice problem sets and discuss ways to approach the problems. 

**Labs:** Wednesday and Thursday, 12:00-1:50 in 112 Esslinger Hall  
Attendance is mandatory. We consider the labs to be an integral part of the course. In lab, you will explore the diversity and complexities of cells, model major concepts in cellular biology, discuss issues related to cellular biology, and perform scientific investigations to understand the mechanisms of inheritance. The course packet, which will be provided for you, contains the lab handouts for each week. Lab handouts will be turned in at the end of each lab or the beginning of lab the following week (due dates announced each week in lab). Late lab reports will not be accepted. **Makeup assignments for missed labs are often different from the original lab, you cannot turn the original lab in instead of the makeup assignment.**
Problem Sets

Ungraded Problem Sets: Practice problem sets will be made available on Canvas. While you are not required to turn these in, you are strongly encouraged to work on the practice problems. A good learning strategy is to work on a problem set by yourself for a while to answer or at least try to answer every question, and then compare your solutions with those of a friend who is in the class. Work through the logic of the problems together, particularly problems for which you have different answers. In addition, you can get help understanding how to solve these problems in the staff office hours, and during synchronous sessions. Practice problems are very similar to the types of questions you will see on the exams; in fact, most practice problems are from previous exams. Practice problems are designed to help you master the material needed to successfully solve the graded problem sets.

Individual Online Review Quizzes:

The individually completed quizzes will test basic knowledge of course content. Most of the questions will test recall of information instead of synthesis and application. These quizzes are available on canvas and will be graded by canvas. They are timed but you have unlimited attempts to get the best score possible.

While it is important to do well on the quizzes, they are only part of what is needed to be successful in the class; the ungraded problem sets are arguably even more important because they will test higher order skills like application, modeling, and synthesis of the content learned in class.

Supplemental Reading

All required content for this course will be presented in the videos and in lecture. However, you may want to use the supplemental reading (provided on Canvas) to gain a broader understanding and to reinforce the concepts in the videos and in lecture.

To minimize student costs, we are using opensource texts for this class. In the past, this course used Freeman, Biological Science 5th and 6th editions. If you already own a copy of this book we can provide you with a reading list if you like, just ask. If you do not own this book you do not need to buy it. If you would like even greater depth, with a focus on biochemistry, you might like OSU's opensource biochemistry text “Biochemistry Free For All” https://biochem.oregonstate.edu/content/biochemistry-free-and-easy

Exams

This course has two exams: one midterms and one final. Both exams are given during lecture time. Exams will cover material from all aspects of the course including lectures, videos, and problem sets. Exams will probe a deep understanding of the concepts and principles discussed, not merely a recitation of facts, and an ability to apply the concepts to novel situations, rather than a memorization of detail. Note the dates of the final and other exams and don’t plan to be gone on these days. You CAN use 1 page, front and back, of hand written personal notes on the exams but you CANNOT use the internet, problem set keys, or other people.

Exam regrade policy

To be fair to all students, it is essential that all exams be graded according to the same criteria. If you wish to submit a midterm for a regrade, you must use the following guidelines. 1) Refer to the exam key available on Canvas to compare your answer to the key. 2) If you still wish to have a midterm exam answer regraded, you must submit a written statement to Jana within one week of the return of the exam.
Evaluation

Grade Policies, flexibility, and Accommodations for BI 211 U23

UO has a relatively new Course Attendance and Engagement policy that ensures all students are treated equally. It states that "instructors shall not ask for reasons for absences and shall not distinguish between "excused" and “unexcused” absences since there is no equitable way to confirm the veracity of student-provided reasons or documentation outside the university context."

University policies governing course absences supersede course-level policies. The university policies on religious accommodation and accessible education are two to be particularly aware of. These both require students to provide documentation that the student may miss class under these policies.

Below is the comprehensive grade distribution and flexibility policy for this class. This flexibility is far greater than in previous years, and represents the absolute maximum allowable deviation from class expectations. I will not ask you to justify why you missed class but NO EXCEPTIONS TO THE BELOW WILL BE MADE FOR ANY REASON. Please do not miss class for frivolous reasons because if have a good reason to miss class later, you will not be given any additional accommodation.

All work must be made up by July 23 or by the time indicated in the additional notes and flexibility column below, whichever comes FIRST. If, in extreme circumstances, this cannot be done you need to submit an incomplete request, which will impact your ability to take BI 212 during second session.

If you have any questions about the table on the next page, please ask as soon as possible.
<table>
<thead>
<tr>
<th>Component</th>
<th>points each</th>
<th>total points</th>
<th>number doped</th>
<th>final point total</th>
<th>additional notes and flexibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online quizzes (8)</td>
<td>2</td>
<td>16</td>
<td>0</td>
<td>16</td>
<td>2 can be late without penalty (but within 1 week or by July 23), 0 points for any additional late quizzes. Technology issues are not an excuse for submitting quizzes late, take them early enough to troubleshoot any such issues.</td>
</tr>
<tr>
<td>Online Videos (~24 graded)</td>
<td>~1</td>
<td>24</td>
<td>4 (only applies if you watch EVERY video within 1 week of due date or by July 23)</td>
<td>20</td>
<td>2 can be watched late without penalty (but within 1 week or by July 23), 0 points for any additional late videos. Technology issues are not an excuse for watching videos late, watch them early enough to troubleshoot any such issues.</td>
</tr>
<tr>
<td>In lecture assessments (~14)</td>
<td>~2</td>
<td>28</td>
<td>2 (4 points)</td>
<td>24</td>
<td>Class assessments cannot be made up for any reason (besides AEC), though your 2 lowest grades will be dropped. Missing class disadvantages you and your group, the deterrent to the group cannot be made up so we are strict about attendance.</td>
</tr>
<tr>
<td>Labs (8)</td>
<td>2</td>
<td>16</td>
<td>0</td>
<td>16</td>
<td>2 labs can be made up (within one week or by July 23) through an independent homework assignment (which is different from the actual lab). The makeup labs assignments will likely take longer than the actual lab because we are trying to make sure that you fully understand the content, and you don't have the help of your group or instructors. They are also not as fun because they are not hands on.</td>
</tr>
<tr>
<td>Exams (2)</td>
<td>10 &amp; 14</td>
<td>24</td>
<td>see additional notes</td>
<td>24</td>
<td>Everyone is allowed one sheet of handwritten notes, front and back, for each exam. There will be no makeup midterms for ANY reason, if you miss the midterm your entire exam grade will come from the final (24 points is not excessive for one exam). EARLY final exams will not be given for ANY reason. If you must miss the final you need to submit an incomplete request, this will impact your ability to take BI 212 during second summer session.</td>
</tr>
</tbody>
</table>
Campus resources to support your learning

Tutoring and Academic Engagement Center (https://engage.uoregon.edu/services/) Drop-in math and writing support in addition to tutoring, study skills support, and Class Encore. Located in the 4th Floor Knight Library (541) 346-3226, engage@uoregon.edu.

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 (see https://aec.uoregon.edu/best-practices-faculty for more information)
The University of Oregon is working to create inclusive learning environments. The instructor believes 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 us as soon as possible. You are also encouraged to contact the Accessible Education Center located at 360 Oregon Hall at 541-346-1155 or uoaec@uoregon.edu.

Center for Multicultural Academic Excellence (CMAE) mission is to promote student retention and persistence for historically underrepresented and underserved populations. We develop and implement programs and services that support retention, academic excellence, and success at the UO and beyond. We reaffirm our commitment to all students, including undocumented and tuition equity students. Located on the 1st Floor of Oregon Hall (541) 346-3479, cmae@uoregon.edu.

The UO Access Shuttle is an on-campus ride service provided at no cost to students with conditions that limit mobility. More information and a sign-up form can be found on the parking & transportation department website: https://parking.uoregon.edu/content/access-shuttle.

Class Courtesy
Please arrive in class on time. Late arrivals distract the instructor and the other students. Please turn off cell phones during the class meeting times. Use your laptop only for class activities. Do not leave class early unless you have cleared it with the instructor in advance. Ask questions if you did not hear or understand something.

Class rosters are provided to the instructor with the student's legal name. I 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 I may address you properly.

Open inquiry, freedom of expression, and respect for difference 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.

Academic Integrity
All students will be expected to adhere to the University's guidelines on academic integrity as outlined in the Student Conduct Code: https://policies.uoregon.edu/vol-3-administration-student-affairs/ch-1-conduct/student-conduct-code. As detailed in the policy, academic misconduct means the violation of university policy involving academic integrity. 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.”) The instructor has 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. 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 or 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. As UO policy has different reporting requirements based on the nature of the reported harassment or discrimination, additional information about reporting requirements for discrimination or harassment unrelated to sexual assault, relationship violence, sex or gender based bullying, stalking, and/or sexual harassment is available at Discrimination & Harassment.

**Reporting Obligations**
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.

**Mandatory Reporting of Child Abuse**
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. Please refer to the following links for detailed information about mandatory reporting: Mandatory Reporting of Child Abuse and Neglect.

Students experiencing any form of prohibited discrimination or harassment, including sex or gender-based violence, may seek information and resources at safe.uoregon.edu, respect.uoregon.edu, or investigations.uoregon.edu or contact the non-confidential Title IX office/Office of Civil Rights Compliance (541-346-3123), or Dean of Students offices (541-346-3216), or call the 24-7 hotline 541-346-SAFE for help. I am also a mandatory reporter of child abuse.

**Safe Ride**
541-346-7433 ext 2
pages.uoregon.edu/saferide

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.

We 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. We 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. We are a feminist, ‘for-the-students/by-the-students’ organization and operate out of the Women’s Center in EMU 12F.

**Summer term operating hours**
Sunday - Thursday | 9p - midnight
Friday + Saturday | 9p - 2a

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

Academic Disruption due to Campus Emergency
"In the event of a campus emergency that disrupts academic activities, course requirements, deadlines, and grading percentages are subject to change. Information about changes in this course will be communicated as soon as possible by email, and on Canvas. If we are not able to meet face-to-face, students should immediately log onto Canvas and read any announcements and/or access alternative assignments. Students are also expected to continue coursework as outlined in this syllabus or other instructions on Canvas.
In the event that the instructor of this course has to quarantine, this course may be taught online during that time."

Academic Misconduct
"The University Student Conduct Code (available at conduct.uoregon.edu) defines academic misconduct. Students are prohibited from committing or attempting to commit any act that constitutes academic misconduct. By way of example, students should not give or receive (or attempt to give or receive) unauthorized help on assignments or examinations without express permission from the instructor. Students should properly acknowledge and document all sources of information (e.g. quotations, paraphrases, ideas) and use only the sources and resources authorized by the instructor. If there is any question about whether an act constitutes academic misconduct, it is the students' obligation to clarify the question with the instructor before committing or attempting to commit the act. Additional information about a common form of academic misconduct, plagiarism, is available at https://researchguides.uoregon.edu/citing-plagiarism."